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SCROPHULARINEÆ INDICÆ.

A SYNOPSIS

OF THE

EAST INDIAN SCROPHULARINEÆ

CONTAINED

In the Collections

PRESENTED BY

THE EAST INDIA COMPANY

TO THE

LINNÆAN SOCIETY OF LONDON,

AND

IN THOSE OF MR. ROYLE AND OTHERS;

WITH SOME

General Observations

ON THE

AFFINITIES AND SUB-DIVISIONS OF THE ORDER.

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INTRODUCTION.

THE examination and description of the Scrophularineæ contained in the East India Company's herbarium, since presented to the Linnæan Society, had been long since entrusted to me by my friend Dr. Wallich; but the determination of the Labiatæ having led me into a general monograph of that order, I had been long unable to devote any time to the Scrophularineæ. I now, however, take the first opportunity of submitting to the public the following Enumeration, to which I have added such other East Indian species as I have received from the rich stores of Mr. Royle and Dr. Wight, or which I have been enabled, through the kindness of my botanical friends, to examine in the extensive herbaria we possess in this country.

The order of Scrophularineæ, one of the most extensive of the Monopetalæ, is also in general a very natural one, but on the other hand, there are some genera which connect it so closely with neighbouring tribes, that a great deal of uncertainty has prevailed about the exact line of distinction to be drawn. With regard to its own genera, also, although some have been grouped together, and described in detail by Botanists of great merit, yet the circumscription of others, and especially of the East Indian ones, is yet in a state of great confusion. I found it, therefore, necessary to go through the whole order, as far as my materials allowed, and to distribute into groups all the genera I was acquainted with. I took advantage of the offer of my friend Dr. Lindley, to publish a short abstract of my ideas on this subject in the *Botanical Register* for June 1835, but the limited space allowed me in that work, prevented my entering into any general observations, which I would now beg leave to suggest, together with such corrections and additions as I have already been enabled to make.

The nearest affinities to Scrophularineæ are undoubtedly the Solaneæ, through the medium of the tribe of Salpiglossideæ; so much so, that it becomes necessary to separate them by a purely artificial distinction, considering as Solaneæ such genera as have the plaited corolla and 5 stamina, and as Scrophularineæ all those in which either the fifth stamen is wanting, or the æstivation of the corolla

imbricate.* The line would thus be drawn between Petunia and Salpiglossis, two genera closely allied in habit. In the first, however, the decidedly plicate corolla and 5 stamina show it to be a true Solanea, whilst the slight irregularity of the corolla and the declinate very unequal stamina, indicate an approach to Salpiglossis, which, being always didynamous, with an imbricately æstivating, or obscurely plicate corolla, is a genuine Scrophularinea.

In the tribe of Verbasceæ the genus Verbascum, as being pentandrous, and Celsia, because it cannot be separated from Verbascum, have usually been referred to Solaneæ, although there are not in that tribe any plants nearly allied to them, but the æstivation of the corolla, besides the general habit, leave no doubt that Bartling and others are right in classing these genera among Scrophularineæ.

Of the other Personate orders those whose genera or species have been most frequently mistaken for, or considered as Scrophularineæ, are: 1. the Gesnereæ and Orobancheæ, distinguished in particular by their unilocular ovarium, with parietal placentæ, although the latter protrude sometimes after fecundation, so as to form a 2-4-locular fruit; 2. the Bignoniaceæ, Cyrtandraceæ and Pedalineæ, which have exalbuminous seeds, besides which the two latter have an unilocular ovarium, with an unilocular, or spuriously 2-4-locular fruit. The above characters, although not always very easy to ascertain, appear, nevertheless, to be decided and constant, they are, moreover, accompanied usually by differences in habit and other minor characters; and I am acquainted with few, if any, intermediates.

Gesnereæ have usually a semi-adherent† ovarium, a character which, amongst Scrophularineæ, I have only observed in a slight degree in some Calceolariæ; and these have the regularly bilocular ovarium and fruit of the latter order. Any further details, however, respecting the character and affinities of Gesnereæ are rendered useless by the elaborate exposition by Martius, in his Nova Genera et Species, vol. 3.

Orobancheæ are at once known by their peculiar habit. They appear to be always parasitical, are never green, and their leaves are converted into scales. The nearest approach to them amongst Scrophularineæ is to be found in the genus Buchnera, in which most, if not the whole, of the section Campyleia are parasitical, and the B. *hydrabadensis* is, like the Orobancheæ, leafless, but with the ovarium and capsule of Buchnera.

Bignoniaceæ are frequently arborescent, which is very rarely the case amongst Scrophularineæ; the same thing may be said of their pinnate leaves, long capsules, and winged seeds, but as each of these

* See Dr. Lindley's Observations in the Botanical Register, Vol. 19. fol. 1626.

† The terms *adherent* and *free*, generally used by foreign Botanists, appear to me to be preferable to those of *superior* and *inferior*, more frequently adopted in this country.

characters is occasionally met with in Scrophularineæ,* the inspection of the embryo must be resorted to for a certain character.

Cyrtandraceæ and Pedalineæ are more readily distinguished by their ovarium always unilocular, if examined before the development occasioned by fecundation.

Two other very extensive orders, the Acanthaceæ and Verbenaceæ, occasionally come also very near to Scrophularineæ, although they are in general sufficiently removed to have occasioned but little difficulty in their separation. Some connecting genera call, however, for a few observations in the case of each.

Acanthaceæ (of which the Indian species and the general character of the order are so admirably elucidated by Nees v. Esenbeck, in Dr. Wallich's Pl. As. Rar. 3. 70.) are generally known by the imbricate polysepalous calyx, the elastically dehiscent capsule, the retinacula of the dissepiment, the want of albumen, and the peculiar habit derived chiefly from the inflorescence. The first of these characters is common to many Gratioleæ ;† the second is observable in Buchnera, the retinacula are wanting in some genera of Acanthaceæ, and the inflorescence of Lindenbergia grandiflora, of Beyrichia, &c. may be easily compared to that of many Acanthaceæ; there remains, therefore, still the minute and often microscopic character derived from the embryo, as the only positive one which has hitherto proved constant.

Verbenaceæ have the more decided character of a fruit which is indehiscent, and an ovarium divided into uniovulated cells. The first of these characters occurs in Thylacantha, Teedia, Leucocarpus, and Tozzia, the second in Melampyrum, but in neither of these cases are both combined. The calyx, corolla, and genitalia are the same in Scrophularineæ and Verbenaceæ. In the latter order, the seeds are also said to have occasionally a small quantity of albumen.

Selagineæ, closely allied to Verbenaceæ, resemble Nycterinia in habit, but are at once distinguished, like the Verbenaceæ, by their indehiscent fruit, with monospermous cells, besides some peculiarities in the structure of their anthers.

The Lentibularieæ, a small order, consisting of Pinguicula and Utricularia, are very closely allied to Scrophularineæ, having the same calyx, corolla, stamina, bivalved capsule, and albuminous seeds, but distinguished solely by their really unilocular fruit, with a free central placenta, and the minuteness of their embryo. In respect of the former character they come very near to Limosella, Lindernia, and other Gratioleæ, with parallel dissepiments and entire valves; for in these plants the dissepiment is very thin, and usually detaches itself from the valves before maturity, so that being concealed by the

* Some New Holland Veronicæ are small trees, Ourisia pinnata, several Veronicæ, Gerardiæ, &c. have pinnate leaves; Bonnaya reptans and others have long pods; and the seeds are winged in Maurandia, Lophospermum, &c.

† Pterostigma, Gratiola, Herpestis, Beyrichia, &c.

seeds, which fill nearly the whole capsule, it often escapes observation, and many of these genera have repeatedly been described as having an unilocular fruit.

From the latter consideration it has been usual, however, to refer these supposed unilocular genera to Primulaceæ, an order perfectly well marked by a very different and a much more important character, that of the situation of the stamens, which are opposed to, not alternate with the petals, showing them to belong to the inner set of a double series of stamina, whereas in Scrophularineæ the stamina are constantly alternate with the petals, and if the normal number be really double that of the petals it is the inner series that is constantly abortive, leaving, as far as has been hitherto observed, no trace in any instance, unless, indeed, the deeply cleft disk, described by Martius as encircling the ovarium in Herpestis lanigera, or the scales in the tube of the corolla of Artanema, be considered as abortive stamina.

Schwenckia, hitherto referred to Scrophularineæ, has the stamina constantly opposed to the petals, as observed by Dr. Lindley upon living specimens, and which at his suggestion I have verified upon dried specimens of several didynamous as well as pentandrous species.* It is, therefore, unquestionably referable to Primulaceæ, and the glandular processes alternating with the petals may be considered probably as abortive stamina of the inner series, analogous to those of Samolus.

It may be scarcely necessary to mention Gentianeæ among the affinities of Scrophularineæ, as their symmetrical flowers and the position of the carpels forming the fruit, which when only two in number are perpendicular to the axis, not parallel to it, as in Scrophularineæ, mark them out at once.† Disandra, an anomalous genus of Scrophularineæ, has something the habit of Villarsia, but I have not had an opportunity of examining sufficiently good specimens to form any opinion as to its real situation.

The limits of the order, if it be thus correctly defined and marked out from so many neighbours upon whose territory it appears to encroach, still remain very wide, and embrace groups considerably removed from each other in many points of view, but which yet appear too closely allied to be separated otherwise than into tribes or suborders. Of these I have, in the above-mentioned paper, proposed twelve, some of which may be thought natural, others are certainly purely artificial, but from the imperfect materials before me I have been unable to circumscribe them more satisfactorily. A few remarks which I have now to add upon each will show some of the difficulties I have met with, and may induce other

* The fifth stamen is, however, generally sterile.

† See Lindl. Introd. 229.

Botanists more used to general classification to suggest such modifications as may improve the groups which are now defective.

In the first tribe, *Verbasceæ*, I have followed Bartling, with some exceptions, and the addition of Calceolaria and Jovellana, which appear to me to connect Scrophularia with Alonsoa. It remains composed of the following genera :—

Verbascum is a very natural European genus if taken in conjunction with Celsia, from which it is artificially separated by the presence of the fifth stamen. The German species have been well distributed by Reichenbach (Fl. Germ. Excurs. 383) into three sections, *Thapsus*, *Lychnitis*, and *Blattaria*, but the separation of the species is difficult. Rœmer and Schultes enumerate 69 ; Reichenbach has 35 German ones ; Tenore 24, in his Neapolitan floras ; Sprengel reduces the whole to 49, and although his reductions are probably for the most part incorrect, yet the great extent to which the same species will vary in the texture and quantity of wool and the form of the leaves, and the great facility with which they produce hybrids (usually sterile), will probably induce the philosophical monographist to consider many of the published species as accidental states, hybrids, or varieties, and reduce the number of legitimate species even below that admitted by Sprengel.

Celsia includes several plants, differing more in habit from each other than from Verbascum and Alonsoa, but artificially distinct from both. It may be naturally divided into three sections, as follows :—

Sect. 1. *Pseudothapsus.* Herbæ. Stamina 2 longiora glabra, antheris oblongis adnatis, 2 breviora barbata, antheris medifixis bilocularibus loculis confluentibus. *C. cretica, betonicæfolia, &c.*

Sect. 2. *Arcturus.* Herbæ. Stamina 2 longiora glabra, breviora leviter barbata, antheris omnibus medifixis bilocularibus loculis confluentibus. *C. arcturus, coromandeliana.*

Sect. 3. *Nefflea.* Suffrutices. Filamenta omnia barbata. Antheræ omnes terminales uniloculares, valvulis 2 ovatis acutis dehiscentes. *C. parviflora, Decaisne.* An genus proprium ?

Alonsoa is so very different from Hemimeris in the structure of the flower, that one is surprised how they could ever have been joined. In habit it comes very near to Celsia (Arcturus), with which it is also connected by the structure of the corolla, &c. but besides some slight difference in the form and dehiscence of the capsule, Alonsoa has the flowers constantly resupinate by the twisting of the pedicel. The stamina (unlike ordinary cases of resupination) remain declinate in relation to the plant generally, thus becoming ascending with regard to the rest of the flower, whilst in Celsia they are declinate, both in regard to the plant and to the flower.

Calceolaria, a very extensive genus, requiring as much as any the labours of a monographist, for the distribution of the species

into natural groups, as well as for the critical comparison of the numerous descriptions already published by different authors, and Jovellana, which I only know from the works of Cavanilles and Ruiz and Pavon, appear to me to connect Alonsoa with Scrophularia, and perhaps with them also should be associated the Bœa of Commerson. But on account of the siliquose fruit I have some doubts of the latter being a true Scrophularinea.

Scrophularia has been worked up with great care and detail by Wydler, to whose work I have only to add the Indian species mentioned below.

The second tribe, the Hemimerideæ, form a small group of four genera, differing from each other in the dehiscence and form of the capsule, and forming the passage from Verbasceæ to Antirrhineæ, allied to the former by the explanate short-tubed corolla and subunilocular stamina, to the latter by the sack or spur at the base of the corolla. The connection of the two first genera, Angelonia and Thylacantha*, both American, with the Cape Hemimerides is not usually recognised, but appears to me to be intimate. The species of the latter genus and of Nemesia are probably numerous, and stand much in need of the labours of some better Phytographist than Thunberg.

The tribe of Antirrhineæ are better known than any of the order, thanks to the elaborate work of Chavannes, to which later discoveries have but little to add. The question, whether Jussieu's Galvesia is to retain that name, or to exchange it for Agassizia, and whether Lophospermum and Rhodochiton be but one, or whether they are two distinct but adjoining genera, are of little importance, and can only be settled in a general work by a Botanist of authority.

Under Salpiglossideæ I have brought seven genera, but with some hesitation as to some of them. Brunsfelsia has a baccate fruit (which I have not had an opportunity of examining), and may perhaps be a true Solanea. Anthocercis is probably here in its right place, but I find I have not been quite correct in the distinctive character *corollæ limbo subrecto*, which does not apply to Labillardiere's original species, it might be corrected to *limbi lobis acutis*.

Lyncea (Schlecht in Linnæa, 5. 108.) which I had overlooked, is apparently near Brunsfelsia, but not having myself seen the plant, and the fruit not having been yet observed, it is impossible to determine whether it even really belongs to this order.

Schizanthus, in many respects so very like Salpiglossis (especially when past flower), appeared to me to connect this genus with Collinsia, and the latter genus to be placed between Schizanthus and the Antirrhineæ; but ulterior observations have pointed out to me a

† By an error of the press, this genus is called *Phylacanthus* in the above-mentioned Enumeration.

remarkable difference between the flowers of Collinsia and Schizanthus, which had at first escaped my attention. In both the stamina are apparently *declinate*, enclosed in the carinate middle division of the *lower* lip of the corolla, whilst the lateral lobes are expanded at right angles. In Collinsia this is really the case, but in Schizanthus the pedicel is twisted, the flower resupinate, and in relation to the parts of the flower the stamina are in fact *ascending* and enclosed in the carinate *upper* lip. The real place of these two genera still remains therefore to be decided on.

The Digitaleæ, consisting of five well-known genera, are chiefly distinguished from Gratioleæ by the filaments of the stamina, which immediately above their insertion are bent downwards, although they usually are afterwards curved up, so as that the anthers are collected under the upper lip of the corolla. The capsule is also usually harder, and always deeply sulcate, but their real affinity to Gratioleæ is very close. The genera Digitalis and Isoplexis have been described in detail in Lindley's Monograph, illustrated by Bauer's splendid drawings. Russelia is at once separated from Pentstemon by the absence of the fifth sterile stamen. Between Chelone and Pentstemon there has been much uncertainty, some authors considering as Chelone all the species with hirsute anthers, and as Pentstemon those in which they are glabrous; others depending on the form of the corolla only; others again combining that consideration with the presence or absence of the membranous wing round the seed. I have followed the latter opinion, referring to Chelone the old *C. glabra*, *obliqua* and *Lyoni*, and, as a somewhat anomalous species, the *C. nemorosa* (Dougl. in Bot. Reg. 14, t. 1211), and to Pentstemon the remaining species, about 25 in number, including *P. centranthifolium* (*Chelone centranthifolia*, Benth. in Hort. Trans. 2d Ser. 1. p. 481.) and *P. cordifolium*,* a New Californian species collected by Mr. Douglas.

We now come to the extensive tribe of Gratioleæ, embracing a great variety of forms, characterised chiefly by the absence of those characters which distinguish the several other tribes. The character derived from the limb of the corolla is very difficult to observe in dried specimens. Indeed, in many cases, the obliquity is so slight that the divisions of the corolla are apparently equal to each other, in which case the didynamy of the stamina alone distinguishes the Gratioleæ from the Buddleiæ and Veroniceæ.

Gratioleæ are, in the above-mentioned paper, distributed according to merely artificial characters. The genera themselves are most of them natural, but I have not as yet succeeded in collecting them

* *P. cordifolium*, caule pruinoso, foliis breviter petiolatis lato-ovatis obtusis integerrimis basi cordatis bullatis subtus nervosis, panicula laxa, corollis tubulosis profunde bilabiatis, labio superiore emarginato, inferiore trifido, filamento sterili barbato, antheris glabris.

into natural groups, marked by any positive character. For this reason it will be found that the order followed in the subjoined Synopsis does not precisely correspond with that of the Enumeration in the Botanical Register.

The three first genera of the tribe, Pterostigma, Lindenbergia, and Stemodia, are so intimately connected together by the remarkable disjunction of the cells of the anthers and filiform adnate connectivum that I had (Bot. Reg. ad calc. n. 1470.) considered them as sections of Stemodia, but a difference in habit, connected with the form of the calyx, may warrant their separation, although the *Pterostigma capitatum* is in some measure a connecting species.

Dodartia stands alone in habit, although the flower be so very nearly that of Mazus, a totally different looking plant.

Mazus and Limnophila are also readily distinguished by their habit. The former has an unilateral inflorescence, approaching to that of Hydrophylleæ. Limnophila appears to have the leaves of the lower part of the plant (usually immersed in water) always multifid and capillary, like those of *Ranunculus aquatilis*. This also takes place in Zuccarini's Hydrotriche, which he describes as diandrous. In other respects this genus appears scarcely to differ from Limnophila. Its place, however, must remain doubtful until the fruit shall have been observed.

Capraria, which I have placed here with doubt, until I have had an opportunity of seeing the flower in a fresh state, should probably be confined to *C. biflora*, of which Ruiz et Pavon's Xuaresia is (as Mr. Don informs me) a mere synonym. If it be removed from Gratioleæ it would find its place next to Buddlea. The *C. saxifragæfolia*, Cham. et Schlecht. has been established as a genus under the name of Pogostoma by Schrader (Linnæa 8, Litt. Ber. 24.) but I am unacquainted with the plant.

Morgania and Uvedalia are unknown to me, but are perfectly characterized in Brown's Prodromus.

Mimulus is a very natural genus, distinguished by its calyx from all except Uvedalia and Torenia, and from the latter, of which it has sometimes the habit, by its capsule and stamina.

Herpestis is readily known by the calyx, and comprises now a considerable number of species, chiefly from the tropical regions of both hemispheres. Martius (Nov. Gen. et Spec. 3. 16.) gives to the great mass of species Lamarck's name of Bramia, and reserves the name of Herpestis to the single H. lanigera, characterized by a curious process arising from the disk, and surrounding the ovarium. Not having seen the plant, I have had noo pportunity (notwithstanding the great reliance I should place on Dr. Martius's judgment) of forming any opinion for myself on this character; but it would appear that, if this be really a good genus, it would yet be advisable to retain

the name of Herpestis for the mass of species to which it was originally given, and to give a new name to the H. *lanigera*.

According to Martius, Calytriplex of Ruiz and Pavon is the Herpestis Monniera.

Sphærotheca, if I am right in the species I have thus determined, has, with the characters of Gratioleæ (very near to those of Matourea) the habit of Scoparia.

To Matourea I have referred several plants which, with the calyx and habit of Gratiola, have didynamous stamens, a loculicidal dehiscence, and the capsular valves entire, or slightly bifid. This leaves an artificial genus, comprising four or five species, closely connected in habit with Gratiola, of which it might perhaps be considered a section.

Caconapea of Chamisso and Schlechtendal, though very different in habit, is scarcely distinguishable from Matourea in character. I am unacquainted with Ranaria of the same authors.

The genus Gratiola remains confined within the limits ascribed to it by Brown (Prod. 435).

Beyrichia (judging from three Bahia species gathered by Salzmann, which I have referred to that genus*) and Achetaria, which appears from Chamisso's descriptions to be closely allied to it, are remarkable by the abortion of the upper stamina, as in most diandrous Labiatæ and Acanthaceæ, and not of the lower ones, as is usual in diandrous Scrophularineæ. The imbricate tribracteate calyx, and in some measure the habit, indicate a further affinity to Acanthaceæ, from which they are however well distinguished by the capsule and seeds.

Dopatrium, confined to the three species mentioned below, is as distinct from Gratiola in habit as in character.

Microcarpæa, Peplidium, and Limosella are very nearly allied to each other in habit, and Peplidium has been joined by Hooker to Microcarpæa; but if the manner of dehiscence of the capsule, and the number and form of the stamina, be really good generic distinctions in the Gratioleæ (and they are very frequently the only ones), it is impossible not to consider these three plants as separate genera.

Bonnaya was separated by Link and Otto from Gratiola on account of the long siliquose fruit, a character very uncertain, and apparently of little importance. There is, however, a much more remarkable difference in the dehiscence of the fruit, which is the same

* 1. B. *ocymoides*, Cham. et Schlecht. in Linnæa, 3. 21.

2. B. *ajugoides*, floribus spicatis, corollæ labio superiore retuso inferiore tricrenato, genitalibus inclusis.—Bahia *Salzmann*.

3. B. *scutellarioides*, pubescens, foliis parvis petiolatis, floribus axillaribus, corollæ labio superiore bifido inferiore trifido.—Bahia *Salzmann*.

4. B. *villosa*, tota villosa, foliis subsessilibus, floribus axillaribus, corollæ labio superiore emarginato, inferiore breviter trifido.—Bahia *Salzmann*.

as that of Lindernia, from which Bonnaya differs only in the lower filaments being always abortive, simple, and club-shaped.

Vandellia, Artanema, and Torenia are connected together by an apparently constant character, the form of the filaments of the lower stamina, which, arising from the mouth of the tube, are always either bifid at the base, or furnished with a tooth or angle, and from thence the fertile filament is arched over to the upper lip, under which are their anthers, adhering to each other. This character was originally assigned to Torenia; and Tittmannia was separated by Reichenbach, to include those species which have a short calyx not plicate, and a globular fruit,—these were considered by Chamisso as the true Toreniæ, those with a linear or oblong fruit, shorter than the calyx (T. *asiatica*, &c.) are referred by him to Nortenia, and such as have a siliquose fruit and short calyx to Vandellia. The length of the fruit, however, in this case, as in Bonnaya, is very uncertain (its dehiscence being the same in all), and I have preferred taking the form of the calyx (in this case much more conformable to habit) as the best character. The name of Torenia having been originally given to the T. *asiatica*, must be retained for Dupetit Thouars, Nortenia, in which that species remains, and as Linnæus' specimen of Vandellia, bad as it is, leaves in my mind no doubt as to its identity with one of the Brazilian species of the other genus, I have adopted that name for it. Artanema, with a peculiar habit (that of Sesamum), is distinguished as well by the form of the corolla as by the presence of squamæ in the tube of the corolla, analogous to those of Hydrophylleæ, Labiatæ, &c. which I have not observed in any other Scrophularineous genus. It was mistaken by Persoon for Loureiro's Diceros, which, from his description, appears to me to be something very different, although I can form no guess as to what it is.

Lindernia, which I have by mistake placed among those in which the lower filaments are entire, has them on the contrary bifid. The L. *pyxidaria* scarcely differs in character from the short-fruited Vandelliæ. The American ones are distinguished from Bonnaya by the bifid filaments, and from Vandellia by the lower stamina being sterile. Perhaps it might be better to consider these three genera as forming but one.

Heteranthia, distinguished, according to Nees and Martius, by the singular disparity of the anthers, is unknown to me, as also Mecardonia of Martius, which, according to his description of the capsule, belongs to the 3rd sect. of Gratioleæ, although it evidently is allied to Matourea, by the imbricate many-leaved irregular calyx.

Conobea of Aublet has precisely the habit of some of the American Herpestides, but with a regular calyx. Not having an opportunity of examining the flowers and capsule in the only specimens I have seen (in the Banksian herbarium), I am unable to determine the precise situation of the genus.

The tribe of Buchnereæ consists of 5 genera, very much alike in the form of the corolla, and in the stamina, but there is a remarkable difference between the fruit of Buchnera and that of the four other genera. The latter (which, if considered as a separate group, might receive the name of Erineæ) have the capsule of Stemodia and other neighbouring Gratioleæ; whilst in Buchnera the dehiscence is constantly loculicidal, the valves entire, and the dissepiment splitting near the centre, the greater part of it adheres to the valves, which are elastically bent back, as in Acanthaceæ. The analogy of the section Campuleia to Orobancheæ, has been already adverted to.

Almost all the Cape plants usually considered as Buchneras, belong either to Nycterinia or to the Selagineæ.

Nycterinia, appropriately distinguished by Don from the European *Erinus alpinus*, and Manulea are both Cape genera, numerous in species, but little known. Sutera was formed by Roth on an East Indian species very near Manulea, and which, as far as I have been able to ascertain from dried specimens, is congener to the *Capraria multifida*, and perhaps to other American herbaceous Capraríæ, of which it has much the habit.

Buddlea, which I have considered as forming a tribe by itself, is very nearly related to Capraria. It has some affinity in the flower to Sutera on the one hand, and to Teedia on the other. It has also the fruit of the two former genera, and Capraria ought, perhaps, to have been conjoined in the same tribe. Buddlea is a numerous genus, and several species appear to be widely spread, and variable in the form of their leaves, on which account it is important the Monographist who undertakes the genus should have a much greater variety of specimens than I have at present before me.

Under the name of Teedieæ I brought together the three baccate genera of Scrophularineæ with which I was partially acquainted, without adverting to the tribe of Hallerieæ having been already established by Link. It is probable that when these plants are better known, they will be otherwise distributed, but in the mean time they may be left bound together by this artificial character with Halleria, under the name of *Hallerieæ*. Hemiphragma should, however, be rather considered as an anomalous Veronicea.

Veroniceæ appear to me to be a very natural tribe, notwithstanding some anomalies in Ourisia and Sibthorpia. I regret that my specimens of Disandra are too imperfect to form any idea of the real place of that genus. I have not either examined Geochorda, but it is evidently closely allied to Scoparia: Picrorhiza is a tetrandrous Veronica, and Calorhabdos, on account of the form of the corolla, must be distinguished from Veronica, unless Wulfenia and Gymnandra be united with it. As to Veronica itself I have nothing to add to Duvau's excellent general observations (Ann. des Sc. Nat. v. 8.), except that I cannot distinguish Pæderota (P. *buonarota*, *Ageria*, &c.) either by any character or by habit. It is much to be regretted

that this extensive genus, now in a great state of confusion as to species, should have been deprived, by the death of the last-mentioned Botanist, of the result of his valuable labours.

The next tribe, the Gerardieæ, nearly connected with Rhinantheæ, in the structure of the anthers and of the seeds, contains several genera, which form connecting links with the Veroniceæ, the Salpiglossideæ, Digitaleæ, and Gratioleæ. Escobedia and Physocalyx have in particular much analogy to Franciscea and Brunsfelsia.

Virgularia, Macranthera, and Gerardia may require some modification in character as to the American species, but I have not a sufficient number before me to enter at present into the comparative merits of the different views entertained by Humboldt and Kunth, (Nov. Gen. et Sp. Amer. vol. 2.) Martius (Nov. Gen. et Sp. Bras. 3. 5.) and Chamisso and Schlechtendal (Linnæa, 3. 12. and 8. 24.). The East Indian species are all true Gerardiæ.

Of Seymeria, which is very near Gerardia, I have only the fruit. Glossostylis is a very singular genus, the three species, although coming from three such different parts of the world, are scarcely distinguishable from each other. In all, the corolla (as far as can be judged from dried specimens) may be assimilated to an Elephas without the upper proboscidal lip. Centranthera, so very near Castilleja in many respects, has entirely the corolla and stamina of the Gerardieæ.

The Rhinantheæ, often considered as a separate order, are, however, too closely allied to Gerardieæ to be otherwise distinguished than as a section of the same order; and, indeed, the only character constant in all the genera is the galeate, or compressed form of the upper lip of the corolla. The embryo is orthotropous in several Bartsiæ and some others, and the three genera forming the first group have not the anthers of the remainder.

Orthocarpus, consisting of 13 North-West American species,*

* 1. O. PUSILLUS, humilis, ramosissima, glabriuscula, foliis apice multifidis laciniis divaricatis setaceis, dentibus calycinis linearibus viridibus corollam subæquantibus.—California, *Douglas.*—Vix 2-pollicaris.

2. O. GRACILIS, caulibus numerosis subramosissimis apice pubescentibus, foliis apice multifidis laciniis divaricatis lineari-subulatis, dentibus calycinis lanceolato-subulatis acutissimis vix coloratis, corollæ (purpurascentis?) tubo exserto pubescente, staminibus galea brevioribus.—California, *Douglas.*

3. O. FLORIBUNDUS, glabriusculus, ramosissimus, foliis apice pinnatifidis laciniis linearibus divaricatis, dentibus calycinis linearibus viridibus, corollæ (luteæ) tubo subexserto glabro, antheris exsertis.—California, *Douglas.*

4. O. ERIANTHA, basi pubescens, apice tomentosus, ramosissimus, foliis apice multifidis laciniis lineari-setaceis divaricatis, calycibus tomentosis dentibus lanceolatis acutissimis viridibus, corollæ (luteæ) tubo longe exserto tomentoso, antheris galea brevioribus.—California, *Douglas.*

5. O? TENUIFOLIUS, piloso-pubescens, foliis 3-5- fidis laciniis lineari-subulatis, floribus dense spicatis floralibus latissimis incisis, dentibus calycinis brevibus subulatis.—*Bartsia tenuifolia*, Pursh Fl. Amer. Bor. 2. 429. An Castilleja? Corollæ in exemplare suppetente mancæ.—America boreali-occidentalis, *Douglas.*

and Castilleja, which spreads from the same country into South America and North Asia, have both of them the peculiar form of anthers not unaptly compared by Nuttall to the Greek λ, and given by him as the chief character of Orthocarpus. They differ in the calyx, and especially in the form of the corolla. Schwalbea, very near Castilleja, again differs in the calyx, as well as in the equality of the lobes of the anthers.

Lamourouxia (excluding L. *bartsioides*, Hook. which is a Bartsia) and Cymbaria, are perfectly distinct and easily characterised genera. Odontites, Euphrasia, Pedicularis, Rhinanthus, Elephas and Melam-

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6. O. DENSIFLORUS, glabriusculus, ramosissimus, foliis apice trifidis laciniis linearibus, spicis densis imbricatis (flavescentibus), laciniis calycinis lineari-subulatis subcoloratis corollæ pubescentis tubum æquantibus, staminibus galea brevioribus.—California, *Douglas*.

7. O. PURPURASCENS, ramosissimus, piloso-hirtus, foliis pinnato-multifidis laciniis linearibus divaricatis, spicis densis imbricatis (purpurascentibus), laciniis calycinis bractearumque lineari-spathulatis apice coloratis corollæ pubescentis tubum æquantibus.—California, *Douglas*.

8. O. HISPIDUS, subramosus, piloso-hispidus, foliis et basi lanceolate longe subtrifidis laciniis lineari-subulatis, floribus distantibus, bracteis viridibus, corollas superantibus, calycis dentibus lineari setaceis viridibus corollæ (flavescentis) tubo glabro brevioribus. Ad ripos.—Fl. Columbia, *Douglas*.

Species 7 præcedentes (2-8) tenues sunt et semipedales vel vix pedales, 5 sequentes (9-13) duri, lithospermoidei, ultrapedales.

9. O. STRICTUS, caule duro hispido, foliis lanceolatis integris trifidisve, floribus distantibus longe spicatis, bracteis divaricate-trifidis laciniis longe lanceolatis corollas superantibus, dentibus calycinis lanceolatis brevissimis viridibus, corollis (luteis) glabris, tubo longe exserto.—Ad. flum. Columbia et Red River, *Douglas*.

10. O. LUTEUS (Nutt. Gen. Fl. N. Amer. 2. 57.) Ad Missouri, *Nuttall*.

11. O. BRACTEOSUS, caule duro pubescente, foliis lanceolatis apice lineari-trifidis, floribus spicatis, bracteis latis divaricato-trifidis rigidis, dentibus calycinis lanceolatis rigidis viridibus corollæ (purpurascentis?) tubo brevioribus.—Ad flum. Columbia, *Douglas*.

12. O. LITHOSPERMOIDES, erectus, durus, ramosus, basi pubescens, apice hispidus, foliis trinerviis apice inferioribus integris superioribus 3-5-fidis laciniis lanceolatis, spicis densis flavescentibus hispidis, dentibus calycinis lanceolato-linearibus flavescentibus hispidis tubo corollæ glabriusculo brevioribus.—California, *Douglas*.

13. O. CASTILLEJOIDES, humilis, pilosiuscula, foliis oblongis superioribus cuneatis breviter trifidis, floribus laxe spicatis, calycibus tubulosis dentibus brevibus viridibus, corollæ (purpurascentis) tubo breviter exserto.—California, *Douglas*.

The *Castilleja laciniata*, Hook. et Arn. Bot. of Beech. Voy. 40, has the calyx of *Orthocarpus*, and the corolla intermediate between that of the two genera. It might perhaps, therefore, be better referred to *Orthocarpus*, near to the O. *hispidus*.

There are several *Castillejæ* in Mr. Douglas's Californian collection, most of them nearly allied to C. *lithospermifolia*, *coccinea*, *pallida*, &c. which require a very detailed diagnosis to distinguish them; the following is, however, so very distinct that I subjoin its character.

C. MACROCARPA, erecta, ramosa, caule piloso, foliis brevibus ovato-oblongis, integris, trinerviis, basi amplexicaulibus, superioribus obtuse trifidis cuneatis, floralibus apice latis coloratis, calycibus brevissime et obtuse 4-fidis hinc fissis, corollæ tubo incluso, galea breviter exserta.—California, *Douglas*.

pyrum, have been well circumscribed by Steven in his elaborate monograph of Pedicularis (Mem. Soc. Imp. Nat. Hist. Mosq. vol. 6. p. 1.) I have only thought it better to keep the Linnæan name of Rhinanthus to the Crista Galli, instead of to the other species to which Tournefort gave the name of Elephas. Under Bartsia I propose to include Steven's Trixago as well as his Bartsia. The genus would thus comprehend the *Euphrasia latifolia* and its allied species, as also nearly all the South American plants which have been described sometimes as Euphrasia, sometimes as Bartsia, and one of them, by Dr. Hooker, as a Lamourouxia.

The new genus of Siphonostegia is described below.

The peculiarities of Tozzia, with which I should close the Enumeration, have been fully described by Auguste de St. Hilaire, (in Mem. Mus. Hist. Nat. Par. 14. 94.) where he satisfactorily shows its true place near the Rhinantheæ, notwithstanding the anomaly of a monospermous indehiscent fruit, which arises from the abortion of one cell and three ovules of a bilocular 4-ovulated ovarium.

In concluding these short observations, I have only to add that, having been requested by Professor de Candolle, to undertake the elaboration of this order for his Prodromus, I should feel particularly obliged by the communication of any specimens which may tend to elucidate the many genera and species which yet remain doubtful.

SCROPHULARINEÆ INDICÆ.

CHARACTER ORDINIS.

Calyx liber, persistens, pentamerus vel abortu tetramerus, sepalis nunc fere ad apicem vel basi tantum coalitis, nunc omnino liberis æstivatione imbricativa, sæpe inæqualibus, supremo nempe maximo, binis infimis minoribus, lateralibus interioribus minimis. Corolla gamopetala, pentamera vel (petalis supremis usque ad apicem coalitis) tetramera, tubo brevi vel elongato, limbo explanato vel recto, subæqualiter partito vel bilabiato, æstivatione imbricativa. Andrœcium simplex oppositi-sepalum. Stamen supremum omnino deficiens vel sterile vel rarissime fertile cæteris brevius, 2 lateralia inter se æqualia antherifera vel rarissime sterilia vel abortiva, 2 inferiora inter se æqualia nunc fertilia lateralibus æqualia vel longiora, sæpe sterilia vel deficientia. Antheræ biloculares vel confluentim dimidiatimve uniloculares, loculis rima longitudinali dehiscentibus. Ovarium liberum, biloculare, loculis 2-polyspermis. Stylus simplex vel rarius apice breviter bifidus. Stigma sæpius simplex, integrum emarginatum vel bifidum, sæpe complanatum, rarius duplex ad apices ramorum styli. Fructus capsularis rarius baccatus, dicarpus, bilocularis, nunc valvulis 2 integris bifidisve vel 4 integris, nunc poris operculisve dehiscens, rarissime subindehiscens, dissepimento parallelo vel contrario, demum in parte centrali vel omnino libero. Placentæ dissepimento adnatæ, interdum maturatione solutæ columnas centrales 1-2 formantes. Semina indefinita (rarius definita), albuminosa, embryone orthotropo, heterotropo vel antitropo.

Herbæ suffrutices vel rarius arbusculæ, sæpius inodora interdum vero fœtentia rarius aromatica. Folia opposita verticillata vel alterna. Flores axillares vel racemosi, ra-

rius spicati. Pedunculi oppositi vel alterni, nunc simplices uniflori, nunc multiflori dichotome cymosi.

Ordo vastus, omnis fere orbis terrarum incola, a regionibus frigidis Alpinis Arcticisve ad calidissimas tropicas, in locis aridis siccissimis, in humidis umbrosisque et etiam in paludibus aquaticisque.

Tribus I. Verbasceæ.

Corolla tubo abbreviato vel subgloboso, limbo explanato 4-5-fido vel bilabiato non ringente. Stamina fertilia 2-5, sæpius declinata. Antheræ approximatæ vel cohærentes, nunc uniloculares, nunc subbiloculares, loculis divaricatis confluentibus. Capsula bivalvis, septicide dehiscens, valvulis sæpe bifidis, dissepimento e marginibus valvularum inflexis duplicato solubili. Semina nuda.

I. Verbascum. *Linn.*

Calyx campanulatus, 5-partitus, subæqualis. Corolla tubo brevissimo, limbo explanato subrotato 5-partito, laciniis rotundatis subæqualibus vel inferiore majore. Stamina 5, declinata, inferioribus longioribus, omnia fertilia. Filamenta omnia vel 3 superiora barbata. Antheræ adnatæ vel rarius medifixæ (loculis confluentibus) uniloculares. Stylus simplex, apice incrassatus. Stigma integrum vel bilamellatum. Capsula ovata vel subglobosa, valvulis apice bifidis.

Herbæ erectæ, duræ, tomento vel lana sæpissime floccoso vestitæ, rarius glabratæ. Folia alterna, sæpe decurrentia. Flores fasciculati, vel rarius solitarii, in racemos simplices vel paniculato-ramosos dispositi. Corollæ flavæ vel phœniceæ.

1. V. Thapsus (Linn. Spec. 252), foliis decurrentibus floccoso-tomentosis lanatisve, racemo simplici spicato denso, antheris staminum inferiorum parum majoribus.—V. *indicum*, Wall. Cat. n. 2630. Nees v. Esenb. in Trans. Soc. Linn. Lond. 1. p. 79.

Hab. in toto jugo Emodi, *Wallich*.

This species, to which the V. *thapsiforme*, *cuspidatum*, and several others should probably be referred, is very variable in the form of the leaves and bracts, but I have frequently observed in Europe the same variations which have distinguished the V. *indicum*, with every possible gradation from the one to the other. The longer stamina have usually a few hairs, but are often quite glabrous.

II. Celsia. *Linn.*

Calyx campanulatus, 5-partitus, subæqualis. Corolla tubo brevissimo, limbo explanato subrotato 5-partito, laciniis rotundatis subæqualibus vel inferiore majore. Stamina 4, didynama, declinata, in-

feriora longiora, omnia fertilia. Stylus simplex, apice incrassatus, stigmate integro. Capsula subglobosa, valvulis apice bifidis.

Herbæ suffruticesve. Folia alterna, inferiora sæpe lyrato-pinnatifida. Racemi terminales subsimplices. Pedunculi solitarii, non torti, post anthesin recurvi.

Sect. Arcturus. *Herbæ. Stamina longiora glabra, breviora leviter barbata. Antheræ omnes medifixæ biloculares, loculis confluentibus.*

1. C. coromandeliana (Vahl. Symb. 3. 79.), foliis radicalibus lyratis, pedicellis fructiferis capsula vix duplo longioribus, laciniis calycinis oblongis integerrimis.—Wall. Cat. n. 2631.—*C. viscosa.* Roth. Catal. 2. 69.—Nees v. Esenb. in Trans. Soc. Linn. Lond. 1. 81.

Hab. in toto jugo Emodi et in Oude, Deyra Dhoun, *Royle, Wallich*, Tanjore in Peninsula, *Wight.*

Very near *C. arcturus*, differs in being usually more hairy, sometimes woolly, the shorter peduncles, the leaves usually narrower at the extremity, the flowers smaller. I cannot, however, agree with Professor Nees von Esenbeck in considering the *C. viscosa* as different from the common *C. coromandeliana*, judging at least from the specimens in the East Indian herbarium.

III. Scrophularia. *Linn.*

Calyx 5-partitus vel sæpius 5-fidus, subæqualis. Corolla tubo ventricoso subgloboso, limbo breviter 5-lobo, laciniis brevibus rotundatis, 2 supremis in labium superius basi coalitis. Stamina fertilia 4, didynama, declinata, antheris confluenti-unilocularibus adnatis. Stamen quintum sterile sæpe præsens, filamento adnato, anthera sessili lamelliformi vel emarginato-spathulata. Stylus simplex, apice incrassatus, stigmate emarginato. Capsula subglobosa vel ovoidea, sæpe acuminata, valvulis integris vel apice breviter bifidis.

Herbæ suffruticesve, sæpissime fœtidæ. Folia opposita vel nonnunquam præsertim superiora alterna, integra vel inciso-pinnatifida, interdum pellucido-punctata. Inflorescentia thyrsoidea, pedunculis oppositis alternisve cymoso-plurifloris, rarius unifloris.*

§ 1. *Stamen sterile nullum.*

1. S. pauciflora, glabra, caule vix angulato, foliis subrotundo-ovatis grosse et acute duplicato-serratis lobatisve, thyrso elongato aphyllo paucifloro, cymis abbreviatis remotis, calycis laciniis lanceolatis acutis non membranaceis capsula brevioribus, genitalibus inclusis.—Corollæ lutescentis laciniæ subæquales. Capsula ovata obtusa.

Hab. in Gossain Than, *Wallich.*

* For the detailed character of this genus, see *Essai Monographique sur le genre Scrophularia par Henri Wydler*, Geneva, 1828.

§ 2. *Stamen sterile basi adnatum, apice liberum (anthera Wydl.) dilatatum, spathulatum, emarginatum. Folia tenuia vel rugosa.*

2. S. URTICÆFOLIA (Wall. Cat. n. 3922), pubescens vel demum glabrata, foliis subrotundo-ovatis grosse duplicato-dentatis basi cordatis, thyrso laxo folioso, pedunculis oppositis 3-7-floris, calycis laciniis lato-ovatis obtusis margine membranaceis, genitalibus inclusis.—Corollæ viridescentes?, labio superiore laciniis inferioribus longiore.

Hab. in Napalia et Gossain Than, *Wallich.*

3. S. HIMALAYENSIS (Royle MSS.), pubescens, elata, caule obtusangulo, foliis ovato-lanceolatis subduplicato-dentatis basi subcordatis, thyrso amplo paniculato basi folioso, calycis laciniis ovato-rotundatis vix membranaceis, genitalibus exsertis.—Corollæ viridescentes.

Hab. in jugo Himalayano communis, *Royle.*

4. S. POLYANTHA (Royle MSS.), pubescens, elata, caule subangulato, foliis ovato-lanceolatis subduplicato-dentatis basi inæqualiter angustatis vel segmentis paucis lanceolatis auctis, thyrso elongato amplo paniculato aphyllo, calycis laciniis ovato-rotundatis margine membranaceis, genitalibus exsertis.—Corollæ viridescentes.

Hab. in Mussooree, *Royle.*

5. S. ELATIOR (Wall. Cat. n. 3921), glabra, elata, caule angulato vel elato, foliis inferioribus ovatis basi cordatis superioribus ovato-lanceolatis omnibus duplicato-dentatis, thyrso amplo paniculæformi subaphyllo, calycis laciniis profundis lanceolatis acutis non membranaceis, genitalibus exsertis.

Hab. in Gossain Than, *Wallich.*

§ 3. *Stamen sterile basi adnatum, apice liberum ovatum acutum. Folia rugosa. Calyx non membranaceus.*

6. S. CALYCINA, glabra vel leviter pubescens, caule angulato, foliis lato-ovatis dentatis basi inferioribus cordatis ramealibus rotundatis, thyrso brevi denso subaphyllo, calycibus 5-partitis laciniis lanceolatis acuminatis pubescentibus capsula longioribus, genitalibus inclusis.—*Veronica? thyrsiflora*, Wall. Cat. n. 6393.—Herba vix ultra-pedalis. Corollæ laciniæ breves subæquales. Capsula magna acuminata.

Hab. in Kamaon, *Wallich*, Kanaour, *Royle.*

§ 4. *Stamen sterile apice orbiculatum. Folia crassiuscula, supra sublævia, irregulariter dentata vel pinnatisecta. Calycis laciniæ rotundatæ, margine membranaceæ.*

7. S. DECOMPOSITA (Royle MSS.), glabra, lucida; foliis oppositis crassiusculis pinnatisectis, segmentis inciso-pinnatifidis lanceolatis inferioribus petiolulatis, thyrso stricto aphyllo, pedunculis inferioribus oppositis, superioribus alternis, brevibus rigidis 3-5-floris, calycis membranis rufis margine albidis, genitalibus exsertis. An *S. lucidæ* var.?

Hab. in Kanaour, *Royle.*

§ 5. *Stamen sterile apice oblongum acutum. Folia et calyx sectionis præcedentis.*

8. S. DENTATA (Royle MSS.), humilis, cæspitosa, leviter pubescens, foliis alternis crassis oblongis basi angustatis apice inciso-dentatis, thyrso simplici paucifloro, pedunculis 1-3-floris, genitalibus exsertis.—Affinis S. *cretaceæ*, sed satis diversa.

Hab. in Kanaour, *Royle.*

TRIBUS II. ANTIRRHINEÆ.*

Corolla tubulosa, limbo personato vel ringente bilabiato rarius subæquali. Stamina fertilia 4, didynama. Antheræ per paria approximatæ, biloculares. Capsula dentibus seu valvulis pluribus operculisve circumscissis dehiscens, vel irregulariter rumpens. Semina nuda vel testa arilliforma inclusa.

IV. LINARIA. *Tourn.*

Calyx 5-partitus. Corolla personata, tubo abbreviato inflato, basi calcarato, palato ad faucem prominulo, interdum depresso. Stamina basi pilosa. Stylus apice incrassatus vel bifidus, stigmate emarginato vel bilobo. Capsula operculis circumscissis vel plurimis valvæformibus aut dentiformibus dehiscens.

Herbæ vel rarius suffrutices. Folia alterna, opposita vel verticillata, integerrima lobatave. Flores ad summitates ramorum racemosi seu spicato-racemosi, vel solitarii axillares.

SECT. ELATINOIDES, Chavannes. *Folia penninervia, plerague breve petiolata, hastata, dentata vel integerrima. Flores axillares. Palatum ad faucem corollæ prominens. Capsula operculis 2 circumscissis vel valvæformibus dehiscens.*

1. L. RAMOSISSIMA (Wall. Pl. As. Rar. 2. 43. t. 153.), glabriuscula, caudice crasso, ramis cauliformibus elongatis, foliis alternis peliolatis glaberrimis omnibus triangulari-hastatis, vel inferioribus subpalminerviis acute 5-7-lobatis, pedicellis rigidis petiolo longioribus, calycis segmentis lineari-lanceolatis acutissimis margine membranaceis, capsulæ operculis oblongis valvæformibus.—Wall. Cat. n. 3911.—L. *Roylei*, Chav. Monogr. 112.—Corolla lutea, labio superiore abbreviato, calcare brevi arcuato.

Hab. in Hindustaniæ et Burmæ ruderatis et petrosis, *Wallich*, in provincia Delhi, *Royle*, Coromandelia? *Heyne*, ad Patna, *Hamilton.*

2. L. INCANA (Wall. Pl. As. Rar. 2. 43.), cano-villosa, caulibus prostratis basi lignosis, foliis ovatis villosis basi subcordatis integer-

* The character, &c. of the plants included in this tribe are chiefly taken from M. de Chavannes' *Monographie des Antirrhinées, Paris*, 1833.

rimis subhastatisve, pedicellis petiolo longioribus, calycis segmentis linearibus acutis, capsulæ operculis oblongis valvæformibus.—Wall. Cat. n. 3910.—Corolla pallido-fusca, intus purpureo-maculata.

Hab. in Napaliæ convallis campis ruderatisque, *Wallich.*

V. Antirrhinum. *Linn.*

Calyx 5-partitus. Corolla personata, tubo crasso vel elongato basi saccato. Stamina basi pilosa. Stigma breve bilobum. Capsula lignescens, basi sæpius obliqua, apice incurva, poris 3 multivalvulatis, vel raro membranacea foraminibus 2 irregularibus sub apice dehiscens.

Herbæ, raro suffrutices. Folia penninervia et integerrima, vel rarius palminervia et lobata, inferiora sæpius opposita, superiora alterna. Flores racemosi vel solitarii axillares.

Sect. Antirrhinastrum, Chav. *Folia penninervia, integerrima, inferiora opposita rarius terna, superiora pleraque alterna. Capsula lignescens vel chartacea, fere pyriformis, basi valde obliqua, apice incurva trifora.*

1. A. Orontium (Linn.-Chav. Monogr. 89.), caule erecto, foliis oblongo-linearibus glabris, calycis segmentis corollam æquantibus vel superantibus pilosis.—Corolla rosea vel albescens purpureo-striata.

β. *indicum* (Chav. Monogr. 90.) caule pubescente, foliis angustioribus, floribus minoribus.—*A. gibbosum*, Wall. Pl. As. Rar. 2. 44. —Cat. n. 3854.

Hab. in provincia Rohilcund, *Wallich*, Delhi, *Royle*, prope Maderaspatam, *Wight.*

Tribus III. Gratioleæ.

Corolla tubulosa, limbo bilabiato vel subæquali, laciniis subplanis. Stamina fertilia 2 vel 4, adscendentia. Antheræ biloculares, muticæ. Capsula 2-4-valvis, septicide vel loculicide dehiscens, valvulis integris bifidisve; placentæ dissepimento non bipartibili demum libero adnatæ. Semina nuda.

§ 1. *Antherarum loculi disjuncti.*

VI. Pterostigma. *Benth.*

Calyx 5-partitus vel profunde 5-fidus, lacinia suprema majore. Corollæ labium superius emarginatum, inferius trilobum. Stamina 2 superiora fertilia, antheris bilocularibus, loculis disjunctis stipitatis, 2 inferiora sterilia vel si fertilia antheris dimidiatis. Stylus simplex, stigmate parum incrassato integro, ala utrinque membranacea sæpius cincto. Capsula rostrata, 2-sulcata, 2-valvis, loculicido-dehiscens, valvulis bifidis, dissepimento e marginibus valvularum inflexis du-

plicato demum libero, placentis dissepimento adnatis vel demum liberis. **Semina parva, nuda, striata.**

Herbæ duræ, villosæ, siccitate sæpius nigrescentes. Folia opposita, rugosa, crenulata. Flores capitati, racemosi, sparsi vel inferiores axillares. Pedicelli breves, apice sæpius bracteati. Odor (*etiam in siccitate*) aromatica Labiatarum.

1. P. GRANDIFLORUM, foliis ovatis, corollis ample tubulosis calyce plus duplo longioribus, floribus racemosis.—Corolla pollicaris.

Hab. ad Macao, *Vachell.*

2. P. VILLOSUM, foliis ovatis acuminatis vel ovato-lanceolatis crenatis rugosis villosis, corollis calyce dimidio longioribus, floribus racemosis.—*Adenosma villosum*, Benth. in Wall. Cat. n. 3851.—Corolla 3-4 lin. longa.

Hab. in montibus Sillet et Tavoy, *Wallich.*

3. P. MACROPHYLLUM, foliis ovatis acuminatis serrato-crenatis basi angustatis flaccidis glabriusculis, corollis calyce dimidio longioribus, floribus racemosis.—*Adenosma macrophyllum*, Benth. in Wall. Cat. n. 3853 —Exemplaria vix florida.

Hab. in Regno Birmannico ad ripas Irawaddi, *Wallich.*

4. P. SPICATUM, foliis subsessilibus oblongis obtuse serratis, floribus dense oblongo-spicatis subcapitatis, calycibus distincte 5-partitis, capsulis rostratis.—*Stemodia capitata*, Benth. in Wall. Cat. n. 3926. et Bot. Reg. ad calc. n. 1470 (ex parte).

Hab. in Peninsula, *Wight,* et Ceylona, *Macrae.*

5. P. CAPITATUM, foliis ovatis oblongisve, floribus globoso-vel oblongo-capitatis, calycibus hispidis sub 5-partitis, capsulis oblongis. —*Stemodia capitata*, Benth. in Wall. Cat. n. 3926. et in Bot. Reg. l. c. ex parte.—Præcedente similis sed capsula et calyce inter *Pterostigmata* et *Lindenbergias* media.

Hab. in omni fere India præsertim montana ; in Napalia, Kamaon, Peninsula, Hindostania, Sillet, Regno Birmanico, Penang, &c., *Wallich.*

VII. LINDENBERGIA. *Link. et Otto.*

Calyx campanulatus, breviter 5-fidus, laciniis ovatis sæpe foliaceis. Corolla ringens; labium superius emarginatum, inferius trilobum. Stamina 4, didynama, inclusa, inferioribus longioribus. Antheræ per paria approximatæ, liberæ, loculis disjunctis stipitatis omnibus fertilibus. Stylus simplex, stigmate parum incrassato integro dilatato. Capsula oblonga, 2-sulcata, 2-valvis, loculicido-dehiscens, dissepimento e marginibus valvularum connatis inflexis duplicato, demum libero, placentis dissepimento adnatis vel demum liberis. **Semina parva, nuda,** striata.

Herbæ ramosæ, interdum scandentes vel divaricatæ, villosæ, inodoræ, siccitate sæpe nigrescentes. Folia opposita, dentata. Flores

sessiles, nunc axillares oppositi, nunc in racemis (vel spicis interruptis) axillaribus terminalibusve dispositi.

1. L. SINÁICA, dura, divaricato-ramosa, villosa, foliis parvis subrotundo-ovatis grosse dentatis, floralibus calyce brevioribus, racemis elongatis axillaribus terminalibusque, floribus oppositis secundis, corollis calyce duplo longioribus.—*Bovea sinaica*, Decaisne in Ann. Sc. Nat. Par. 2. ser. 2. 253.

Hab. in deserto Sinaico, *Bové*.

2. L. GRANDIFLORA, scandens, villoso-pubescens foliis amplis inæqualiter ovatis acuminatis dentatis, floralibus corolla brevioribus, racemis axillaribus laxis, floribus oppositis secundis, corollis calyce quadruplo longioribus.—*Stemodia grandiflora*, Hamilt. in Don Prod. Fl. Nep. 89.—Benth. in Wall. Cat. n. 3924. et Bot. Reg. l. c.—Caules pluripedales. Folia 3-6-pollicaria. Corollæ ultra pollicem longæ.

Hab. in Napalia, *Wallich*.

3. L. MACROSTACHYA, subscandens, dura, glabriuscula, foliis oblongis acutissime serratis, floralibus ovato-lanceolatis calyce brevioribus, racemis elongatis multifloris axillaribus terminalibusque, floribus subalternis, corollis calyce duplo longioribus.—*Stemodia macrostachya*, Benth. in Wall. Cat. n. 3925. et Bot. Reg. l. c.—*Adenosma cuspidatum*, Benth. in Wall. Cat. n. 3852.—Folia vix sesquipollicaria. Herba siccitate semper nigrescit.

Hab. in Oude, Serpur, Martabania, ad Prome, *Wallich*, ad portum Kheeree, *Royle*.

4. L. URTICÆFOLIA (Lehm in Link et Otto, Abb. 95.), erecta, vel adscendens, annua, villosa, foliis ovatis, floralibus conformibus, floribus solitariis axillaribus, corollis calyce vix triplo longioribus.—*Stemodia ruderalis*, Vahl. Symb. 2. 69. Benth. in Wall. Cat. n. 3923. et in Bot. Reg. l. c.—*Brachycoris parviflora*, Schrad.—Herba semipedalis vel vix pedalis, valde ramosa, sæpe purpurascens.

β. *major*, caulibus elongatis ramosioribus.

Hab. in omni fere India præcipue montana; in Napalia, Hurdwar, Oude, Sillet et Regno Birmanico, *Wallich*, Sansedarra et Mussooree, *Royle*. β in Martabania, *Griffiths*, ad Ripas Irrawaddi, *Wallich*.

2. L. POLYANTHA (Royle MSS.), erecta vel adscendens, annua, villosa, foliis ovatis, floralibus inferioribus conformibus, superioribus calyce brevioribus, racemis multifloris, floribus oppositis secundis, corollis calyce duplo longioribus. Affinis *L. urticæfoliæ*, sed inflorescentia distincta.

Hab. ad Delhi secus ripos Jumna, *Royle*.

VIII. STEMODIA LINN.

Calyx tubuloso-campanulatus, 5-partitus, subæqualis. Corolla ringens, labio superiore emarginato, inferiore trilobo. Stamina 4,

didynama, inclusa, inferioribus longioribus. Antheræ per paria approximatæ, liberæ, loculis disjunctis stipitatis, omnibus fertilibus. Stylus simplex, stigmate integro parum dilatato. Capsula oblonga vel subglobosa, 2-sulcata, 2-valvis, valvulis bifidis, dissepimento e marginibus valvularum inflexis duplicato demum libero, placentis adnatis. Semina parva, nuda.

Sect. MODESTIA. *Cham. et Schlecht. Capsula loculicide dehiscens, valvulis septicide bifidis. Herbæ sæpe glabræ, habitu Gratiolis et Limnophilis affines, siccitate vix nigricantes. Folia opposita vel verticillata, sessilia vel breviter petiolata. Flores axillares vel superiores in capitulo racemove approximati.*

**** Floribus subsessilibus.***

1. S. MENTHASTRUM (Benth. in Wall. Cat. n. 3927. et in Bot. Reg. l. c.), erecta, glabriuscula, foliis subsessilibus ovato-oblongis utrinque angustatis, floralibus conformibus calyce longioribus, floribus sessilibus supremis in capitulum subglobosum glabrum aggregatis, calycis laciniis lanceolato-subutatis.

Hab. in montibus Monghyr, *Hamilton.*

2. S. HYPERICIFOLIA (Benth. in Wall. Cat. n. 3934. et in Bot. Reg. l. c.), glabra, basi radicans, adscendens, foliis sessilibus ovato-oblongis obtusis basi cordato-amplexicaulibus, floralibus minoribus, racemis terminalibus axillaribusve, floribus sessilibus remotis, calycis laciniis lanceolatis.—*Cybbanthera connata*, Hamilt. in Don Prod. Fl. Nep. 87.

Hab. in Napalia, *Wallich.*

3. S. BALSAMEA (Benth. in Wall. Cat. n. 3928. et Bot. Reg. l. c.), caule procumbente, ramis subhirsutis, foliis ovatis obtusis basi in petiolum brevem angustatis glabris, floralibus conformibus, floribus axillaribus sessilibus solitariis vel utrinque 2-3 glomeratis, calycis laciniis lanceolato-subulatis.

Hab. ad Tavoy Regno Birmanico, *Wallich.*

4. S. SESSILIS (Benth. in Wall. Cat. n. 3939. et in Bot. Reg. l. c.), procumbens, glabra, foliis sessilibus oblongis obtusis crenatis basi angustatis, floralibus conformibus, floribus solitariis axillaribus subsessilibus, calycibus glabris laciniis lanceolato-subulatis strictis, corollis calyce vix longioribus.—Herba uliginosa, humilis, radicans. Flores vix 4 lin. longi.

Hab. ad Goalpara et Moolmyne, *Wallich*, in Ceylona, *Macrae.*

5. S. TENUIFLORA (Benth. in Wall. Cat. n. 3940. et in Bot. Reg. l. c.), procumbens, glabra, foliis sessilibus lanceolatis acutis serratis basi rotundatis, floralibus conformibus, floribus solitariis axillaribus subsessilibus, calycibus glabris laciniis lanceolato-subulatis strictis, corollis calyce vix longioribus.—Præcedenti affinis sed pusilior, floribus minoribus. Habitus *Lythri hyssopifolii.*

Hab. prope Prome in Regno Birmanico, *Wallich.*

6. S. MICRANTHA (Benth. in Wall. Cat. n. 3936. et in Bot.

Reg. l. c.), pusilla, diffusa, ramosissima, glabra, foliis sessilibus oblongo-lanceolatis acutis basi angustatis, floralibus conformibus, floribus sessilibus solitariis axillaribus, calycibus glabris laciniis lanceolato-subulatis recurvo-patentibus, corollis calyce duplo longioribus.—Præcedentibus affinis sed calycibus brevioribus subglobosis et laciniis recurvo-patentibus distincta. Caules vix 3-4-pollicares. Habitus *Anagallidis tenellæ*.

Hab. in Sillet, *Wallich*.

7. S. REPENS (Benth. in Wall. Cat. n. 3935. et in Bot. Reg. l. c.), repens, glabra, subviscosa, foliis sessilibus oblongo-lanceolatis basi angustatis acutis serratis, floralibus vix calyce longioribus, floribus subsessilibus racemosis glomeratisve, calycibus subglabris laciniis lanceolatis apice subulatis recurvo-patentibus, corollis calyce duplo longioribus.—Caules elongati, sæpius ultrapedales. Racemi laxiusculi, terminales vel axillares.

Hab. in Peninsula circa Maderaspatam?

8. S. CAMPHORATA (Vahl. Symb. 2. 69?), erecta, viscoso-pubescens, foliis petiolatis ovato-oblongis, floralibus lineari-lanceolatis, racemis axillaribus folio subbrevioribus, floribus subsessilibus, calycibus pubescentibus laciniis lanceolatis acutis, corollis calyce subtriplo longioribus.—S. *camphorata*, Benth. in Wall. Cat. n. 3932. et in Bot. Reg. l. c.—S. *cimicina*, Benth. in Wall. Cat. n. 3933.—Caules basi floriferi. Racemi numerosi, breves, laxi, foliosi.

Hab. in Hindustania? *Hamilton*, et ad Prome in regno Birmanico, *Wallich*.

** *Floribus pedicellatis, pedicellis calyce longioribus.*

9. S VISCOSA (Roxb. Pl. Corom. 2. 33. t. 163.), erecta, pubescens, viscosa, foliis sessilibus ovato-oblongis acutis versus basin angustatis, ad basin dilatato-cordatis amplexicaulibus, floralibus conformibus, floribus axillaribus solitariis, supremis subracemosis, calycis laciniis lanceolatis acutis.—S. *viscosa*, Benth. in Wall. Cat. n. 3929. et in Bot. Reg. l. c.—S. *maritima*, Heyne, Benth. in Wall. Cat. n. 3931. non Linn.

Hab. in Coromandelia et in Bengala? *Roxburgh, &c.*

10. S. HIRSUTA (Heyne—Wall. Cat. n. 3930.—Benth. in Bot. Reg. l. c.), caule erecto hirsuto, foliis subsessilibus basi angustatis, supremis vix amplexicaulibus glabris, floralibus pedicello subbrevioribus, racemo terminali, floribus solitariis oppositis, calycis laciniis lanceolato-subulatis.

Hab. in Peninsula? Hindustania et Sillet. *Wallich*.

11. S. DIFFUSA (Benth. in Wall. Cat. n. 3937. et in Bot. Reg. l. c.), diffusa, glabra, foliis sessilibus oblongo-lanceolatis basi angustatis, floralibus conformibus, floribus solitariis axillaribus, calycibus glabris laciniis lanceolatis acutis, corollis calyce duplo longioribus.—Statura S. *micranthæ*, sed floribus pedicellatis majoribus et calyce distinctissima.

Hab. ad Tavoy Regno Birmannico, *Wallich*.

12. S. GRATIOLOIDES (Benth. in Wall. Cat. n. 3938. et in Bot. Reg. l. c.), glabra, erecta, foliis sessilibus oblongo-lanceolatis basi angustatis amplexicaulibus, floralibus conformibus, floribus axillaribus oppositis solitariis, calycis laciniis lanceolatis, corollis calyce dimidio longioribus.

Hab. ab Tavoy Regno Birmannico, *Wallich*.

§ 2. *Antherarum loculi contigui. Capsulæ valvulæ* 4, *vel si* 2 *loculicide dehiscentes vel fissæ.*

IX. LIMNOPHILA. *Br.*

Calyx tubulosus, 5-fidus, æqualis. Corolla infundibuliformis, limbo subbilabiato, labio superiore bilobo, inferiore trifido, lobis omnibus planis. Stamina 4, didynama. Filamenta integra, apice sæpius abrupte incurva, nunc dilatata. Antheræ per paria cohærentes, loculis parallelis distinctis. Stigma obliquum, dilatatum, bilamellatum. Capsula 2-sulcata, 2-valvis, valvulis loculicide dehiscentibus bifidis, dissepimento e marginibus valvularum tardius dehiscentibus demum libero, placentis adnatis.

Herbæ paludosæ vel aquaticæ. Folia opposita, inferiora submersa, profunde multipartita, laciniis capillaceo-multifidis more *Ranunculi aquatilis*, emersa integra dentata vel incisa, sæpe tripartita et hinc quasi verticillata. Flores solitarii oppositi, nunc sessiles, nunc pedicellati, axillares vel racemosi, pedicelli apice sæpe bibracteati.

§ 1. *Axilliflorœ. Folia emersa vix semipollicaria.*

1. L. REFLEXA (Benth. in Wall. Cat. n. 3904.), caule tenui glabro, foliis emersis plerisque oppositis integerrimis, floribus sessilibus axillaribus, dentibus calycinis brevibus muticis, capsulis demum reflexis.

Hab. ad Tavoy Regno Birmannico, *Wallich*.

2. L. HETEROPHYLLA (Benth. in Wall. Cat. n. 3905.), caule crassiusculo glabro, foliis emersis plerisque ternatim verticillatis serrulatis, floribus sessilibus axillaribus subverticillatis, dentibus calycinis subulato-acuminatis.—*Columnea heterophylla*, Roxb. Fl. Ind 3. 97.?

Hab. in Napalia, *Wallich*, ad Nathpur et Gajpur, *Hamilton*, in Peninsula? *Heyne*.

3. L. SESSILIFLORA (Blume, Bijdr.—Benth. in Wall. Cat. n. 3902.), caule hirsuto, foliis emersis tripartitis incisis, floribus sessilibus axillaribus.

Hab. ad Goalpara, *Hamilton*, Sillet, *Wallich*.

4. L. GRATIOLOIDES (Br. Prod. 442.), caule glabro, foliis emersis oppositis, infimis tripartitis incisis vel capillaceo-multifidis, superioribus integris serrulatis, floribus pedicellatis oppositis axillaribus. —*Gratiola trifida*, Willd. Spec. Pl. 1. 104.—*Hottonia indica*,

Linn. Spec. 208.—*Hydropityon pedunculatum*, Ser. in DC. Prod. 1. 422.—*Columnea balsamica*, Roxb. Fl. Ind. 3. 97.

β. myriophylloides, foliis fere omnibus multipartitis, laciniis breviter capillaceo-multifidis.—*Limnophila myriophylloides*, Roth. Nov. Pl. Sp. 294.

γ. elongata, caule elongato, foliis submersis capillaceo-multifidis, caulinis distantibus fere omnibus integris.—*Limnophila elongata*, Benth. in Wall. Cat. n. 3903.

Hab. in omnius Indiæ et Archipelagi Asiatici paludosis uliginosis et etiam in paludibus exsiccatis, et hinc valde variat, cauie nunc brevi erecto ramoso vix 2-3-pollicari, nunc sesquipedali natante foliis omnibus capillaceo-multipartitis. Herba tota sæpissimæ glabra, rarius pilis nonnullis in calycibus pedunculisque prædito.

§ 2. *Racemosæ. Folia emersa sæpius ultra-pollicaria.*

5. L. RACEMOSA (Benth. in Wall. Cat. n. 3907.), foliis emersis oppositis subverticillatisve trinerviis integris vel infimis partitis, racemo denso multifloro, calycibus membranaceis lævibus pedicellatis. —*Cyrilla aquatica*, Roxb. Pl. Corom. 2. p. 47. t. 189.—*Limnophila hyssopifolia*, Roth. Nov. Pl. Sp. 297.?

Hab. in Peninsula et Bengala, *Wallich*, Bejar, *Royle*.

6. L. GRATISSIMA (Blume, Bijdr.? —Benth. in Wall. Cat. n. 3906.), foliis emersis ternatim verticillatis penninerviis, racemo laxo, calycibus elevato-striatis longe pedicellatis.

Hab. ad Goalpara, *Hamilton*, in Peninsula, *Wight*, Ceylona, *Macrae*.

7. L. POLYSTACHYA (Benth. in Wall. Cat. n. 3909.), foliis emersis ternatim verticillatis trinerviis, racemis ramosis tenuibus multifloris, floribus parvis sessilibus.

Hab. in Peninsula et Bengala, *Roxburgh*, &c.

Limnophila campanuloides, Benth. in Wall. Cat. n. 3908, is apparently a Gentianea.

Columnea tomentosa, and C. *minuta*, Roxb. Fl. Ind. 3. 98. do not appear congenerous with his C. *balsamea* and C. *heterophylla* (which I have above referred to *Limnophila gratioloides* and L. *heterophylla*); but from his short descriptions it is impossible to determine whether they belong to *Stemodia* or *Vandellia*, probably to the former.

Capraria gratissima, Roxb. Fl. Ind. 3. 92. appears to be a *Limnophila*, perhaps one of the foregoing. I have been unable to form any satisfactory opinion as to the C. *diffusa* of the same author.

X. MAZUS. *Lour.*

Calyx campanulatus, 5-fidus, subæqualis. Corolla bilabiata, labio superiore bidentato vel bifido, inferiore longiore 3-fido, basi

2-gibboso, lobis integris. Stamina 4, didynama, inclusa. Filamenta integra. Antheræ per paria cohærentie vel approximatæ, loculis divergentibus vel divaricatis demum confluentibus. Stylus simplex. Stigma bilamellatum. Capsula 2-valvis, loculicide dehiscens, valvulis integris medio septiferis, dissepimento demum libero, placentis adnatis.

Herbæ humiles, sæpe procumbentes vel repentes. Folia radicalia numerosa, petiolata, grosse dentata vel lobata, ramorum sterilium opposita, floralium perpauca alterna. Racemi ramorum floralium, vel scapi nudi terminales unilaterales. Flores alterni, pedicellati. Bracteæ nullæ, vel in quoque pedicello 1-2.

1. M. SURCULOSUS (Don, Prod. Fl. Nep. 86.), stolonibus reptentibus, foliis inciso-crenatis rugosis hispidis suberispis, ramorum sterilium rotundatis, calycis laciniis tubo suo brevioribus ovatis obtusis, corollis calyce vix duplo longioribus.—Wall. Cat. n. 3912.

Hab. in Napalia et Kamaon, *Wallich*, Mussooree, *Royle*.

2. M. RUGOSUS (Lour. Fl. Cochinch. 385.), vix stolonosa, foliis omnibus oblongo-cuneatis grosse dentatis, calycis laciniis ovato-lanceolatis lanceolatisve acutis tubum æquantibus, corollis calyce vix duplo longioribus.—M. *bicolor*, Benth. in Wall. Cat. n. 3913.—*Hornemannia bicolor*, Willd. Enum. 654.—Reichenb. Icon. Bot. Exot. 1. 25. t. 37.—*Gratiola goodenïæfolia*, Hornem. Hort. Hafn.

Hab. in omni fere India, in Napalia, Kamaon, Sillet, *Wallich*, Mussooree, Saharunpur, *Royle*, in Peninsula.

3. M. DENTATUS (Wall. Cat. n. 3914.), estolonosa, foliis ovatis sinuatis, corollis calyce triplo longioribus —Folia majora latiora, glabriora, minus lobata quam in præcedente. Corollæ duplo majores.

Hab. in Napalia, *Wallich*.

XI. MIMULUS. *Linn.*

Calyx tubulosus, 5-angulatus, 5-dentatus. Corolla ringens, labio superiore bilobo, inferiore trifido, basi sæpius bigibboso, laciniis omnibus planis. Stamina 4, didynama, inclusa. Antherarum loculi divergentes vel divaricati, demum subconfluentes. Stigma bilamellatum. Capsula vix sulcata, bivalvis, loculicide dehiscens, valvulis integris margine planis, dissepimento demum libero, placentis adnatis.

Herbæ erectæ vel procumbentes, glabræ vel rarius villosæ, caule sæpe tetragono. Folia opposita, dentata, vel rarius integerrima. Flores axillares, solitarii, pedunculati, superiores interdum racemosi.*

* The following enumeration contains all the genuine Mimuli with which I am acquainted :

§ 1. *Caule erecto, foliis penninerviis, calyce tubuloso.*

1. M. LINEARIS, suffruticosus, viscosissimus, caule erecto ramoso, foliis linearibus integerrimis margine revolutis, pedunculis subracemosis, calycibus elongatis plicatis, dentibus lanceolato-linearibus obtusis inæqualibus. — California, *Douglas*.

1. M. STRICTUS (Benth. in Wall. Cat. n. 3918.), erectus, glaber, foliis oblongo-lanceolatis obtusis subintegerrimis basi vix angustatis cordato-amplexicaulibus, pedunculis foliis longioribus, calycibus ovato-tubulosis vix plicatis, dentibus brevibus ovatis subæqualibus.

Hab. in Rajemahl, *Wallich*, ad Kheeree Pass, *Royle*.

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2. M. GLUTINOSUS (Wendl. Obs. 51.), viscosus, caule erecto pubescente, foliis supra glabris oblongis lanceolatisve basi angustatis eroso-dentatis integerrimisve, pedunculis folio brevioribus, calycibus elongatis plicatis dentibus lanceolato-linearibus inæqualibus.—M. *aurantiacus*, Curt. Bot. Mag. t. 354.—California, *Menzies*, *Douglas*, *&c.*

3. M. RINGENS (Linn. Spec. 884.), glaberrimus. caule erecto, foliis oblongis lanceolatisve subdentatis basi dilatatis cordato-amplexicaulibus, calycibus tubulosis subincurvis plicatis, dentibus lanceolato-linearibus inæqualibus. America borealis.

4. M. ALATUS (Ait. Hort. Kew. 2. 361.), glaber, caule erecto, foliis amplis oblongo-ellipticis acuminatis basi in petiolum angustatis, calycibus tubulosis plicatis truncatis, dentibus linearibus.—America borealis.

5. M. STRICTUS *suprà*.

§ 2. Caule basi sæpius procumbente vel repente rarius erecto, foliis 3-5-nerviis dentatis, calycibus ovatis tubulosisve sæpius inflatis.

6. M. BREVIPES, pubescens, caule erecto viscoso, foliis oblongo-lanceolatis linearibusve subdentatis basi angustatis subsessilibus vel superioribus amplexicaulibus, floribus subsessilibus, calycibus ovatis plicatis hinc fissis, dentibus lanceolatis inæqualibus.—California, *Douglas*.

7. M. LEWISII (Pursh. Fl. Amer. Sept. 2. 427. t. 20.),—ad Missouri, *Pursh*.

8. M. CARDINALIS (Dougl. MSS.), villosus, foliis amplexicaulibus ovatis margine eroso-dentatis, pedunculis folio longioribus, calycibus amplis inflato-tubulosis vix plicatis, dentibus ovatis acutis, antheris villosis.—California, *Douglas*.

9. M. ROSEUS (Dougl.—Lindl. Bot. Reg. 19. t. 1591.), pubescens, foliis amplexicaulibus oblongis subdentatis trinerviis, pedunculis folio brevioribus, calycibus amplis subinflato-tubulosis, dentibus ovatis acutis subæqualibus, antheris glabris. —Ad Columbia flumen, *Douglas*.

10. M. LUTEUS (Linn. Spec. 884.), glaber, foliis eroso dentatis, inferioribus longe petiolatis ovatis sublyratisve, superioribus rotundatis cordato-amplexicaulibus, calycibus ovatis, fructiferis campanulatis, dentibus ovatis acutis, supremo maximo. —*Chili*.

11. M. LYRATUS, basi glaber, apice pubescens, viscosus, foliis eroso-dentatis cordato-amplexicaulibus, calycibus ovatis, fructiferis inflato-campanulatis, dentibus ovatis acutis supremo maximo, corollis calyce duplo longioribus.—California, *Douglas*.

12. M. GUTTATUS (DC. Cat. Hort. Monsp. 127.), glaber, foliis subintegerrimis inferioribus longe petiolatis, superioribus rotundatis cordato-amplexicaulibus, calycibus ovatis, fructiferis inflatis orecontracto, dentibus ovatis supremo latissimo, corollis calyce duplo longioribus.—California, *Douglas*.

13. M. PARVIFLORUS (Lindl. Bot. Reg. 11. t. 874.), glaber vel vix pubescens, foliis lato-ovatis eroso-dentatis basi late truncato-cordatis, inferioribus petiolatis superioribus sessilibus, calycibus ovatis, fructiferis latissime campanulatis, dentibus latis brevibus supremo maximo, corollis calyce dimidio longioribus.—*Chili*.

14. M. GLABRATUS (Humb. et Kunth. Nov. Gen. et Sp. Amer. 2. 370.), glaber vel vix pubescens, foliis lato-ovatis obtusis eroso-dentatis basi late truncato-cordatis, inferioribus petiolatis superioribus sessilibus, calycibus ovatis, fructiferis inflato-campanulatis, dentibus latis brevibus supremo maximo, corollis calyce dimidio vel vix duplo longioribus.—M. *propinquus*, Lindl. Bot. Reg. 16. t. 1330.? —Mexico et California.

15. M. ANDICOLUS (Humb. et Kunth. l. c.)—in monte Pichincha, *Humb. et Bonpl.*

2. M. NEPALENSIS (Benth. in Wall. Cat. n. 3917.), glaber, diffusus, foliis petiolatis ovatis serratis basi cuneatis rotundatisve, calycibus ovato-tubulosis, dentibus brevibus acutis, supremo parum majore.

Hab. in Napalia, *Wallich.*

3. M. ORBICULARIS (Wall. Cat. n. 3919.), glaber, repens, foliis petiolatis orbiculatis integerrimis crassiusculis, calycibus ovato-tubulosis truncatis brevissime dentatis.

Hab. ad Rangoon et Tavoy, Regno Birmannico, *Wallich.*

XII. HERPESTES. *Gærtn.*

Calyx 5-partitus, sepalo supremo maximo ovato, 2 inferioribus angustioribus, 2 lateralibus linearibus obtectis. Corolla tubulosa, subbilabiata, labio superiore bifido, inferiore trifido, laciniis omnibus planis subæqualibus. Stamina 4, didynama, inclusa. Antheræ per paria approximatæ, loculis divergentibus divaricatisve demum subconfluentibus. Stylus simplex, stigmate emarginato vel bilamellato. Capsula vix sulcata, 4-valvis, valvularum marginibus planis, dissepimento demum libero, placentis adnatis.

Herbæ utplurimum repentes, glabræ, villosæ (vel lanatæ?). Folia opposita, integerrima vel dentata. Flores axillares, sessiles vel pedicellati, solitarii vel 2-3 glomerati. Bracteæ nullæ, vel in quoque pedunculo 1-2.

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16. M. PILOSIUSCULUS (Humb. et Kunth. l. c.)—Peruvia, *Humb. et Bonpl.*

17. M. MOSCHATUS (Dougl.—Lindl. Bot. Reg. 13. t. 1118.), caule diffuso lanato-villoso, foliis petiolatis ovatis vel ovato-lanceolatis subdentatis basi rotundatis pilosiusculis subviscosis, calycibus tubulosis fructiferis oblongis, dentibus lanceolatis inæqualibus.—Ad Columbia flum. *Douglas.*

18. M. FLORIBUNDUS (Dougl.—Lindl. Bot. Reg. 13. t. 1125.), diffusus, laxe pilosus, viscosus, foliis petiolatis lato-ovatis subdentatis basi truncatis rotundatisve, calycibus (parvis) ovato-tubulosis subæqualiter truncatis brevissime et acute dentatis.—California et ad Columbia flumen. *Douglas.*

19. M. ALSINOIDES (Dougl. MSS.), glaber, diffusus, foliis longe petiolatis ovatis subdentatis basi cuneatis rotundatisve, calycibus (parvis) ovato-tubulosis oblique truncatis brevissime dentatis.

α. paniculatus.—America boreali-occid. *Douglas.*—California, *Menzies.*

β. minimus, 1-3-*florus.*—Ad Columbia flum. *Douglas, Scouler.*

20. M. PRIMULOIDES, glaber, stolonifer, ramis floriferis brevibus, foliis subsessilibus obovatis obscure dentatis integerrimisque, pedunculo elongato solitario terminali, calycibus tubulosis breviter dentatis.—Amer. boreali-occid. *Douglas.*

21 M. PEDUNCULARIS (Dougl. MSS.), pubescens, humilis, foliis petiolatis ovatis acutis subdentatis basi cuneatis rotundatisve, calycibus (parvis) ovato-tubulosis, dentibus brevibus acutis subæqualibus.—America boreali-occident. *Douglas.*

§ 3. *Caule diffuso, foliis penninerviis tenuibus dentatis, calyce ovato-tubuloso.*

22. M. NEPALENSIS, *supra.*

§ 4. *Caule repente, foliis crassiusculis integerrimis glaberrimis.*

23. M. ORBICULARIS, *supra.*

24. M. REPENS (Br. Prod. 439.), glaber, repens, foliis ovatis obtusis integerrimis semiamplexicaulibus crassiusculis, calycibus ovato-tubulosis truncatis brevissime dentatis.—Terra Diemenica, *Gunn.*—*Herpestidi Monnieræ* similis habitu.

25. M. GRACILIS (Br. Prod. 439.)—Nova Hollandia, *Brown.*

1. H? AMARA, subglabra, foliis petiolatis ovatis crenatis basi cuneatis, pedunculis axillaribus folio brevioribus apice subracemosis 2-4-floris, floribus pedicellatis.—*Gratiola amara*, Roxb. Fl. Ind. ed. Car. et Wall. 1. 136?

Hab. in ins. Moluccis, *Roxburgh.*

I describe this from specimens without any name or habitat in the Madras herbarium, although not entered in Dr. Wallich's Catalogue. The flowers are very young, but appear to me to have the calyx of *Herpestes*, instead of being 4-sepaled as described by Roxburgh. In other respects they agree exactly with his description. If he is right about the calyx, this character, together with the inflorescence, might serve to distinguish a new genus.

2. H. OVATA (Wall Cat. n. 3896.), glabra, procumbens, foliis breviter petiolatis ovatis crenatis, floribus solitariis oppositis subsessilibus.—Habitus H. *chrysanthæ* et nonnisi floribus subsessilibus differt.

Hab. ad Tavoy, Regno Birmannico, *Wallich.*

3. H. HAMILTONIANA (Benth. in Wall. Cat. n. 3898.), glabra, erecta, foliis lanceolatis integerrimis basi angustatis, floribus sessilibus oppositis solitariis.

Hab. ad Sukanaghur, *Hamilton.*

4. H. LANCEOLATA (Wight in Wall. Cat. n. 3899.), glabra, erecta, foliis lanceolato-linearibus integerrimis basi angustatis, floribus pedicellatis in axilla quaque 1-3.

Hab. in Peninsula, *Wight.*

5. H. MONNIERA (Humb. et Kunth. Nov. Gen. et Sp. Amer. 2. 294.), repens, glabra, foliis cuneiformibus integerrimus, floribus solitariis oppositis longe pedicellatis.—Wall. Cat. n. 3900. *Gratiola Monniera Linn. Amæn. Acad.* 4. 306.—*Gratiola portulacacea*, Weinm in Syll. Pl. Ratisb. 1. 222.—*Monniera Brownei*, Pers. Syn. 1. 116.—*Monniera cuneifolia*, Mich. Fl. Bor. Amer. 2. 22.—*Herpestes cuneifolia*, Pursh Fl. Amer. Sept. 2. 418.—*Herpestes procumbens*, Spreng. Syst. 2. 802.—*Bramia Indica*, Lam. Dict. 1. 459.—*Calytriplex obovata*, Ruiz et Pav. Prod. Fl. Per. et Chil.

Hab. in omni fere India et China, ins. Moluccis, America boreali et tropica, ins. Sandwich, &c.

Obs. H. *floribunda*, Roth. Nov. Pl. Sp. 289 (non Br.), et H. *rugosa*, Roth. l. c. 290, vedentur ex genere et forsan ex ordine excludendæ. An ad Acanthaceæ referendæ?

XIII. DOPATRIUM, *Hamilt.*

Calyx brevis, membranaceus, semi-5-fidus. Corolla infundibuliformis, tubo exserto, limbo oblique ampliato 5-fido subbilabiato, labio inferiore majore. Stamina brevissima, 2 (superiora) fertilia,

antheris cohærentibus bilocularibus, loculis parallelis, 2 (inferiora) minima, sterilia. Stigma bilamellatum, dilatatum. Capsula vix sulcata, quadrivalvis, valvularum marginibus subplanis, dissepimento demum libero, placentis adnatis.

Herbæ uliginosæ, teneræ, glabræ. Folia opposita, radicalia et inferiora pauca, obovata, integerrima, caulina minuta, distantia. Pedicelli filiformes, oppositi vel abortu alterni, uniflori. Corollæ cœruleæ.

1. D. NUDICAULE, humilis, ramosissima, foliis caulinis minimis acutissimis, capsulis oblongis.—*Gratiola nudicaulis* Willd. Act. Berol. 4. 192.—*Gratiola aphylla*, Roth. Nov. Pl. Spec. 7.—*Gratiola cuneifolia*, Roxb. Fl. Ind. ed. Car. et Wall. 1. 142.—Herba 2-3-pollicaris.

Hab. in Peninsula, *Rottler. Heyne, Wight, &c.*

2. D. LOBELIOIDES, caule elongato parum ramoso, foliis caulinis minimis obtusis, capsulis globosis, corollis calyce subquintuplo longioribus.—*Gratiola lobelioides*, Retz obs. 4. 7.—Habitus *Lobeliæ Dortmannæ*. Flores longiuscule pedicellati, ad apices caulium racemosi.

Hab. in Coromandelia, *Heyne, Wight.*

3. D. JUNCEUM (Hamilt. MSS.), caule elongato parum ramoso, foliis caulinis minimis obtusis, capsulis globosis, corollis calyce vix triplo longioribus.—*Gratiola juncea*, Roxb. Pl. Corom. 2. 16. t. 129.—D. *lobelioidi*, simillima. Flores multo minores. Pedicelli breviores, inferiores saepe brevissimi.

Hab. in Coromandelia, *Roxburgh* (at exemplaria Peninsubrica non vidi), in Sillet, Rajemahl et ad Segain Regno Birmannico, *Wallich*, Saharumpur, *Royle*.

XIV. MICROCARPÆA, *Br.*

Calyx brevis, campanulatus, 3-5-dentatus. Corolla minima, tubo calycem æquante, limbo subbilabiato 5-fido, laciniis omnibus planis subæqualibus. Stamina fertilia 2 (superiora). Filamenta recta, integra. Antheræ approximatæ, biloculares, loculis parallelis. Staminum inferiorum vestigia nulla. Stigma bilamellatum, dilatatum. Capsula bivalvis, valvulis integris medio septiferis, dissepimento demum libero, placentis adnatis.

Herbæ pusillæ, muscosæ, glabræ, *Limosellæ* simillimæ. Folia opposita. Flores pedicellati, axillares, minimi.

1. M. SPATHULATA (Hook. Bot. Misc. 2. 101. Suppl. t. 4.), repens, foliis lineari-spathulatis, calyce tridentato.—*Peplidium capense* Spreng. Syst. 1. 43.—*Limosella diandra*. Linn. Mant. 252.

Hab. in Peninsula, *Wight*, in Indiæ planitie usque ad Saharumpur, *Royle*.

§ 3. *Antherarum loculi contigui. Capsulæ valvulæ* 2, *integræ, marginibus planis, dessepimento membranaceo parallelo.*

XV. Peplidium. *Delile.*

Calyx campanulatus, 5-dentatus, Corolla minima, tubo calycem æquante, limbo quinquefido, vix bilabiato, laciniis omnibus planis subæqualibus. Stamina fertilia 2 (superiora). Filamenta basi gibba, subappendiculata, incurva. Antheræ approximatæ, biloculares, loculis parallelis. Staminum sterilium vestigia nulla. Stigma dilatatum, simplex? Capsula globosa sæpius irregulariter rupta, valvulis vix solutis vel si dehiscunt integris, dissepimento parallelo.

1. P. humifusum (Delile).—Herba repens glabra, habitu *Peplidis*. Folia opposita, obovata, integerrima. Flores axillares, oppositi, solitarii, brevissime pedicellati.—*Microcarpæa cochlearifolia*, Sm. in Rees. Cycl.—Hook. Bot. Misc. 3. 95 Suppl. t. 29.—*Pæderota cochlearifolia*, Kon. et Rottl. Wall. Cat. n. 3920.—*Hedyotis maritima*, Linn. Suppl. 119.—*Oldenlandia maritima*, Roth. Nov. Pl. Sp. 97.

XVI. Bonnaya. *Link et Otto.*

Calyx 5-partitus, subæqualis. Corolla tubo exserto, limbo bilabiato 5-fido, labio superiore breviore. Stamina fertilia 2 (superiora), inclusa, antheris cohærentibus, sterilia 2, ad basin labii inferioris inserta. Stigma complanatum, bilamellatum. Capsula globosa, oblonga vel sæpius linearis, bivalvis, valvulis integris membranaceis margine planis, dissepimento parallelo placentifero demum libero.

Herbæ glabræ vel rarius pilosiusculæ repentes, teneræ vel suberectæ. Folia opposita, integerrima vel dentata. Flores axillares, oppositi vel abortu alterni, sæpius pedicellati, superiores interdum racemosi.

§. 1. *Siliquosæ. Capsulis linearibus* (*Vandelliis siliquosis affines*)

* *Capsulæ erecto-patentes, flores racemosi*

1. B. brachiata (Link et Otto Abbild. 2. 25. t. 9.), erecta, ramosissima, foliis oblongis argutissime serratis, floribus racemosis, capsulis erecto-patentibus calyce duplo longioribus.—Benth. in Wall. Cat. n. 3855.—*Gratiola serrata*, Roxb. Fl. Ind. 1. 140.—Capsulæ semi-pollicares.

Hab. in Peninsula et Bengala, *Wallich* in Indiæ planitie usque ad Saharunpur, *Royle*.

2. B. reptans (Spreng. Syst. 1. 41.), caule repente, foliis subrotundo-oblongis in petiolum angustatis argute serratis, floribus racemosis, capsulis erecto-patentibus calyce 2-3-plo longioribus.—Benth. in Wall. Cat. n. 3856.—*Gratiola reptans*, Roxb. Fl. Ind. 1. 140.

—*Gratiola ruellioides*, Kön.—Colsm. Grat. p. 12. fide herb. Banks.—*Bonnaya ruellioides*, Spreng. Syst. 1. 41.—*Gratiola ciliata*, Colsm. Grat. 14?—*Bonnaya ciliata*, Spreng. Syst. 1. 41.—*Henckelia Roxburghiana*, Link, Schwægr. et Dietr. Spec. Pl. 1. 572.—Capsulæ longiores quam in B. *brachiata*, sæpius 8-10-lineares.

Hab. in Napalia, Sillet, Moluccis, &c. *Wallich, &c.*

3. B. VERONICÆFOLIA (Spreng. Syst. 1. 41.), caule repente, foliis oblongis, inferioribus petiolatis, superioribus serratis crassiusculis, floribus racemosis, capsulis erecto-patentibus calyce 2-3-plo longioribus.—Benth. in Wall. Cat. n. 3857. excl. litt. C.—*Bonnaya rigida*, Benth. in Wall. Cat. n. 3859—*Bonnaya procumbens*, Benth. in Wall. Cat. n. 3860.—*Gratiola veronicæfolia*, Retz. Obs. 4. 8?—Roxb. Pl. Corom. 2. 30. t. 154.—*Gratiola marginata*, Colsm. Grat. p. 11?—*Bonnaya marginata*, Spreng. Syst. 1. 4?—*Gratiola grandiflora*, Retz. Obs. 41. p. 8. fide Herb. Banks. non Roxb.—*Gratiola racemosa*, Roth. Nov. Pl. Spec. 9.—*Bonnaya Rothii*, Link, Schwægr. et Dietr. Sp. Pl. 1. 556.—Capsulæ 6-7-lin. longæ.

Hab. in Hindustania, Napalia, Sillet, Regno Birmannico, *Wallich;* China, *Nelson.*

4. B. VERBENÆFOLIA (Spreng. Syst. 1. 42.), caule erecto vel adscendente, foliis lanceolatis integerrimis serratisve, floribus racemosis, capsulis erecto-patentibus calyce 2-3-plo longioribus.--Benth. in Wall. Cat. n. 3858, 3857. C.—*Tittmannia Colsmanni*, Benth. in Wall. Cat. n. 3950.—*Torenia gracilis*, Benth. in Wall. Cat. n. 3952.—*Gratiola verbenæfolia*, Colsm. Grat. p. 9.—*Gratiola racemosa*, Roxb. Fl. Ind. 1. 139—Roth. Nov. Pl. Spec. 9.—*Gratiola ciliata*, Commers. in Colsm. Grat. p. 14?—*Gratiola Roxburghiana*, Rœm. et Schult. Syst. 1. 123.—*Bonnaya Roxburghiana*, Link, Schwægr et Dietr. Spec. Pl. 1. 559.—Species *Vandelliæ angustifolia* simillima et sæpe nonnisi staminibus distinguitur.

Hab. in Hindustania, Sillet, Regno Birmannico, *Wallich;* China, *Nelson.*

5. B. PUSILLA (Benth. in Wall. Cat. n. 3861.), caule diffuso ramosissimo, foliis ovato-oblongis sessilibus crassiusculis serratis, floribus parvis racemosis, capsulis suberectis linearibus calyces vix excedentibus.

Hab. in Singapore, *Wallich.*

Obs. Species hujus sectionis valde variabiles et facile inter se confuduntur.

* * *Capsulæ erecto-patentes, flores axillares.*

6. B. GRANDIFLORA (Spreng. Syst. 1. 41.), caule diffuso subreptante, foliis ovatis vel ovato-lanceolatis sessilibus serratis, floribus axillaribus oppositis, capsulis linearibus erecto-patentibus calyce vix duplo-longioribus.—*Bonnaya Wightii*, Benth. in Wall. Cat. n.

3864.—*Gratiola grandiflora*, Roxb. Pl. Corom. 2. 42. t. 179. vix Retz.—*Henckelia grandiflora*, Link, Schwægr. et Dietr. Spec. Pl. 1. 573.—*Vandelliæ pedunculatæ* simillima. Nomen *grandiflora* vix convenit.

Hab. in Peninsula, *Wight.* &c.

7. B. PEDUNCULARIS (Benth. in Wall. Cat. n. 3865.), caulibus elongatis tenuibus, foliis remotis oblongo-lanceolatis subintegerrimis, floribus axillaribus solitariis longe pedunculatis, capsulis linearibus patentibus calyce vix duplo longioribus.—Affinis *Gratiolæ pulegifoliæ*, Vahl. Enum. 1. 98.? sed flores rarissime oppositi.

Hab. ad Sillet, *Wallich.*

*** *Capsulæ reflexæ.*

8. B. OPPOSITIFOLIA (Spreng. Syst. 1. 41.), erecta, foliis oblongis lanceolatisve subserratis, pedunculis oppositifoliis, capsulis linearibus reflexis.—Benth. in Wall. Cat. n. 3862.—*Gratiola oppositifolia*, Roxb. Pl. Corom. 2. 30. t. 155. an Retz.?—*Henckelia oppositifolia*, Link, Schwægr. et Dietr. Spec. Pl. 1. 573.

Hab. in Coromandelia, *Heyne*, *Roxburgh.*

9. B. TENUIFOLIA (Spreng. Syst. 1. 42.), foliis linearibus subintegerrimis, pedunculis oppositifoliis, capsulis linearibus reflexis.—Benth. in Wall. Cat. n. 3863.—*Gratiola tenuifolia*, Colsm. Grat. p. 8.

Hab. in Coromandelia, *Rottler*, *Kœnig ;* ad Tavoy regno Birmannico, *Wallich.* in China, *Nelson.*

§ 2 *Brachycarpæ. Capsulis ovatis calycem breviter superantibus patentibus.*—(*Linderniæ similes.*)

10. B. HYSSOPIOIDES (Benth. in Wall. Cat. n. 3866.), caule elongato laxo, foliis oblongis lanceolatisve remotis, pedunculis axillaribus elongatis filiformibus, corollis calyce 3-4-plo longioribus.—*Gratiola hyssopioides*, Linn. Mant. 174.—Roxb. Pl. Corom. 2. 16. t. 128.

Hab. in Hindustania et Sillet, *Wallich*, China, *Nelson.*

11. B. PARVIFLORA (Benth. in Wall. Cat. n. 3867.), humilis, ramosa, foliis oblongis lanceolatisve, floribus axillaribus subracemosisve, corollis calyce duplo longioribus.—*Gratiola parviflora*, Roxb. Pl. Corom. 3. 3. t. 203.

Hab. in Hindustania, Sillet et Regno Birmannico, *Wallich.*

§ 3 *Sphærocarpæ. Capsulis rotundatis calyce brevioribus. (Vandelliis Sphærocarpis similes.)*

12. B. ROTUNDIFOLIA, diffusa, foliis sessilibus lato-ovatis subcordatis, pedunculis axillaribus, capsulis rotundatis calyce brevioribus.—*Gratiola rotundifolia*, Linn. Mant. 174.—Roxb. Pl. Corom. 3. 3. t. 204.—*Gratiola debilis*, Heyne in Wall. Cat. n. 3946. B?

Hab. in Peninsula, *Roxburgh*, in Ceylon, *Macrae.*

13. B BRACHYCARPA (Cham. et Schlecht in Linnæa 2. 568.), " caule decumbente, foliis oblongis obtusiusculis utrinsecus subtriden-

ticulatis basi angustatis, pedunculis folio brevioribus, capsula calycem subæquante."

Hab. in India Orientali—Species mihi ignota.

Gratiola minima, Roth. Nov. Pl. Spec. 8, videtur altera *Bonnayæ* species.

XVII. Vandellia. *Linn.*

Calyx tubulosus vel campanulatus, subæqualis, 5-dentatus vel 5-partitus. Corolla tubo exserto, limbo bilabiato 5-fido, labio superiore breviore. Stamina fertilia 4, didynama, 2 superiora brevia, filamentis integris, 2 inferiora ad basin labii inferioris inserta, filamentis elongatis arcuatis basi appendice dentiformi vel filiformi auctis. Antheræ per paria cohærentes, biloculares, loculis divergentibus divaricatisve apice confluentibus. Stylus simplex, stigmate complanato bilamellato vel simplici (?). Capsula globosa, oblonga vel linearis, bivalvis, valvulis integris membranaceis margine planis, dissepimento parallelo placentifero demum libero.

Herbæ glabræ vel pilosæ, nunc *Bonnayis* nunc *Toreniis* similes. Folia opposita, sæpius dentata. Flores axillaris, oppositi vel fasciculati, superiores sæpe racemosi.

§ 1. *Brachycarpæ. Capsula subglobosa vel ovato-oblonga, calyce brevior vel vix longior.*

* *Calyx ante anthesin 5-dentatus, capsula calyce brevior.*

1. V. OBLONGA, glabra, suberecta, foliis oblongis lanceolatisve basi angustatis integerrimis crassiusculis, pedunculis paucis elongatis subracemosis, calycibus tubulosis subæqualiter 5-dentatis semi-5-fidisve, capsulis globosis calyce brevioribus.

Hab. in China prope Macao, *Vachell.*

2. V. MOLLUGINOIDES, glabra, foliis subsessilibus ovato-oblongis basi cuneatis margine scaberrimis, pedunculis rigidis fasciculatis calyce vix longioribus, calycibus basi angustatis apice 5-dentatis demum irregulariter fissis, capsulis ovato-oblongis calyce brevioribus.—*Torenia molluginoides*, Benth. in Wall. Cat. n. 3960.—Calyces rigidi, 2 lin. longi. Corollæ parum longiores.

Hab. in Regno Birmannico, *Wallich.*

3. V. ALBA, diffusa, subglabra, foliis breviter petiolatis ovatis basi rotundatis cuneatisve, pedunculis tenuibus fasciculatis calyce sesqui-tri-plo longioribus, calycibus tenuibus apice sub-5-dentatis demum vix fissis, capsulis oblongis calyce brevioribus.—*Torenia alba*, Hamilt. in Wall. Cat. n. 3961.

Hab. ad Nathpur, *Hamilton.*

4. V. CRUSTACEA, diffusa, glabra, foliis ovatis, pedunculis axillaribus subracemosisve calyce 2-5-plo longioribus, calycibus ante anthesin 5-dentatis demum 5-partitis capsulas ovatas superantibus.—*Capraria crustacea*, Linn Mant. 87.—*Torenia crustacea*, Cham.

et Schlecht in Linnæa, 2. 570.—*Gratiola lucida*, Roxb Pl. Corom. 3. 2. t. 202.—*Morgania lucida*, Spreng. Syst. 2. 802.—*Torenia lucida*, Hamilt. in Wall. Cat. n. 3962.—*Gratiola aspera*, Roth. Nov. Pl. Spec. 11.—*Hornemannia ovata*, Link. et Otto, Abbild. 1. 9. t. 3.—*Tittmannia ovata*, Reichb. Iconogr. Exot. 1. 27. Calyces 2-2½-lin. longi.

Hab. in omni fere India ; a Peninsula, *Wight*, &c. usque ad Macao Sinensium, *Nelson*, et ad Saharunpur, *Royle*.

* * *Calyx ante anthesin 5-partitus capsula, calyce brevior.*

4. V. ERECTA, suberecta, glabra, foliis subsessilibus ovatis oblongisve basi angustatis, pedunculis axillaribus racemosisve calyce 2-5-plo longioribus, calycibus ante anthesin 5-partitis vel profunde 5-fidis, laciniis lanceolatis membranaceis capsulas ovatas superantibus.—*Tittmannia trichotoma*, Benth. in Wall. Cat. n. 3943.—*Tittmannia erecta*, Benth. in Wall. Cat. n. 3947 (ubi cum *Bonnaya parviflora* miscitur).—Valde affinis V. *crustaceæ*, sed satis distincta videtur.

Hab. in Peninsula, Deyra Dhoon, Munghyr, Napalia, Sillet, Assufghur, Regno Birmannico, &c., *Wallich*, *Royle*, *&c.*

5. V. ELATA, glabra vel parce pilosa, foliis petiolatis ovatis basi subcordatis, pedicellis racemosis calyce demum vix duplo longioribus, calycibus ante anthesin 5-partitis, laciniis lanceolato-subulatis capsulas ovatas superantibus.—*Tittmannia elata*, Benth. in Wall. Cat. n. 3944.

Hab. ad Tavoy Regno Birmannico, *Wallich*.

6. V. HIRSUTA (Hamilt. MSS.), hirsuta, foliis ovatis, inferioribus petiolatis basi angustatis, superioribus subsessilibus basi cordatis, pedicellis racemosis calyce demum 2-4-plo longioribus, calycibus ante anthesin 2-partitis, laciniis lanceolato-subulatis capsulas subglobosas superantibus.—*Tittmannia ovata*, Benth. in Wall. Cat. n. 3942. non Reichb.—*Gratiola viscosa*, Hornem. Hort. Hafn. 19.—*Hornemannia viscosa*, Willd. Enum. 654.—*Tittmannia viscosa*, Reichb. Icon. Bot. Exot. 1. 26. t. 38.

Hab. ad Goalpara, *Hamilton*, in Peninsula, *Herb. Madr.*, Sillet et Ava, *Wallich*.

7. V. SCABRA, diffusa, hirsuta vel subglabra, foliis subsessilibus lato-ovatis basi subcordatis rotundatisve, pedunculis axillaribus racemosisve calyce 2-5-plo longioribus, calycibus ante anthesin 5-partitis, laciniis lanceolatis capsulam subglobosam superantibus.—*Torenia hirta*, Cham. et Schlecht. in Linnæa 2. 571.—*Tittmannia pusilla*, Benth. in Wall. Cat. n. 3945. excl. litt. C.—*Tittmannia sulcata*, Benth. in l. c. n. 3946. A.—Habitus V. *crustaceæ*, planta præsertim calyces siccitate sæpe nigrescit; similis etiam *Bonnayæ rotundifoliæ* sed inflorescentia et staminibus diversa.

Hab. in Peninsula, *Wight*, &c. et Tavoy, *Wallich*.

8. V. LAXA, diffusa, hirsuta, foliis subsessilibus basi rotundatis

subcordatisve, pedicellis axillaribus racemosisve calyce 2-5-plo longioribus, calycibus ante anthesin 5-partitis, laciniis subulatis hirsutissimis capsulam globosam superantibus.—Benth. in Wall. Cat. n. 3945. C.—An V. *scabræ* var.? at habitu et calycibus diversa.

Hab. in Peninsula, *Wight.*

9. V. MOLLIS, hirsuta, foliis subsessilibus oblongo-ovatis vel ovato-lanceolatis molliter villosis, pedicellis axillaribus racemosisve calyce 2-4-plo longioribus, calycibus ante anthesin 5-partitis, laciniis subulatis hirsutissimis capsulam oblongam superantibus.—*Tittmannia hirta*, Benth. in Wall. Cat. n. 3948.—Calyces demum 4 lin. longi, in aliis plerisque hujus sectionis vix 2 lin.

Hab. ad Sillet, *Wallich.*

*** *Calyces 5-dentati vel 5-fidi. Capsula ovata calyce parum longior.*

10. V SESSILIFLORA, foliis subsessilibus rotundatis basi subcordatis, floribus sessilibus fasciculatis, calycibus 5-dentatis demum subfissis, capsulis oblongis calyces subsuperantibus.—*Torenia sessiliflora*, Benth. in Wall. Cat. n. 3959.

Hab. in Regno Birmannico ad Taong Dong montem, *Wallich.*

11. V. MINIMA (Royle MSS.), pusilla, simplex, erecta, subglabra, foliis subsessilibus rotundatis basi subcordatis, floribus sessilibus fasciculatis, calycibus semiquinquefidis, capsulis ovatis calyces superantibus.

Hab. in Mussooree, *Royle.*

12. V. NUMMULARIÆFOLIA (Don Prod. Fl. Nap. 86 ?), erecta, ramosa, foliis subsessilibus rotundatis, pedunculis axillaribus subfasciculatis unifloris ramosisve, capsulis ovatis oblongisve calyce subduplo longioribus.

Hab. in Napalia, *Wallich*, in Mussooree, *Royle.*

§ 2. *Siliquosæ. Capsulæ oblongo-lineares calyce longiores.*

V. DIFFUSA (Linn. Mant. 89.), diffusa, pubescens, foliis lato-ovatis subsessilibus, floribus axillaribus sessilibus, calycibus sub 5-fidis capsula oblonga dimidio brevioribus.—*Gratiola origanifolia*, Vahl. Enum. 1. 99?—*Bonnaya origanifolia*, Spreng. Syst. 1. 42.

Hab. in Brasilia prope Bahiam, *Salzmann.*—Exemplaria Indica non vidi, sed citatur in ins. Mauritio a Cl. *Chamisso* et si synonynom supra citatum huc rite refertur, crescit etiam in Peninsula.

13. V. PEDUNCULATA, glabriuscula, laxe procumbens, foliis ovatis, pedicellis axillaribus solitariis elongatis, calycibus 5-partitis capsula, oblongo-lineari subdimidio brevioribus.—*Tittmannia grandiflora*, Benth. in Wall. Cat. n. 3949. ex parte.—Vix a *Bonnaya grandiflora* distinguenda.

Hab. in Peninsula? in Ceylona, *Macrae*, ad Sillet, *Wallich.*

14. V. ANGUSTIFOLIA, glabra, laxe diffusa, foliis oblongo-linearibus, pedicellis axillaribus elongatis, calycibus 5-partitis capsula ob-

longo-lineari dimidio brevioribus.—*Tittmannia angustifolia*, Benth. in Wall. Cat. n. 3951.

Hab. in Napalia, *Wallich*, ad Nathpur, *Hamilton*.

Gratiola cordifolia, Vahl. Enum. 1. 97, (*Bonnaya cordifolia*, Spreng. Syst. 1. 42.) et *Gratiola strigosa*, Roth. Nov. Pl. Spec. 12, videntur *Vandelliæ* species. An etiam *Gratiola Chamædrys*, Roth. l. c. 10? vel hæc potius ad *Stemodiam* referenda? De genitalibus et capsulæ dehiscentia silet cl. auctor.

XVIII. Torenia, *Linn.*

Calyx tubulosus, plicatus, apice oblique 5-dentatus vel bilabiatus, labiis 2-3-dentatis. Corolla ringens, labio superiore bifido, inferiore trifido, laciniis subplanis. Stamina fertilia 4, didynama, 2 superiora brevia filamentis integris, 2 inferiora ad basin labii inferioris inserta, filamentis elongatis arcuatis, basi appendice dentiformi vel filiformi auctis. Antheræ per paria cohærentes vel approximatæ, biloculares, loculis divergentibus divaricatisve apice confluentibus. Stylus simplex, stigmate complanato bilamellato vel simplici (?). Capsula oblonga, calyce brevior, bivalvis, valvulis integris margine planis, dissepimento parallelo placentifero demum libero.

Herbæ ramosæ, glabræ vel villosæ, basi diffusæ. Folia opposita sæpius dentata. Flores axillares, oppositi vel fasciculati, interdum racemosi.

1. T. racemosa, hirsuta, foliis ovatis acutis rugosis, floribus oppositis racemosis, corollis calyce plus dimidio longioribus.—Benth. in Wall. Cat. n. 3957. B. C.—Corollæ cæruleæ. Calyx fructifer 7-8 lin. longus.

Hab. in Sillet et Penang, *Wallich*.

2. T. flava (Hamilt. in Wall. Cat. n. 3957. A.), subhirsuta, foliis ovato-oblongis obtusis, floribus oppositis racemosis, corollis calycem vix excedentibus.—Corollæ flavæ? Calyx fructifer 6-7 lin. longus.

Hab. ad Goalpara, *Hamilton*

3. T. asiatica (Linn. Spec. 862.), foliis ovatis vel ovato-lanceolatis, pedunculis axillaribus subfasciculatis, corollis calyce oblongo basi attenuato subduplo longioribus.—Benth. in Wall. Cat. n. 3953. —*Torenia cordifolia*, Benth. in Wall. Cat. n. 3954. non Roxb.—*Torenia pedunculatis*, Benth. in Wall. Cat. n. 3956.—*Torenia diffusa*, Don. Prod. Fl. Nep. 86.—Benth. in l. c. n. 3955.—*Torenia alba*, Hamilt. Benth. in l. c. n. 3961.—*Torenia hians* et *Tor. vagans*, Roxb. Fl. Ind. 3. 96.—*T. hirsuta*, Willd. Spec. 3. 266.—(*Gratiola alata*, Roxb. Fl. Ind. ed. Car. et Wall. 1. 137? (*Bonnaya alata*, Spreng. Syst. 1. 41.)—*Henckelia alata*, Link, Schwægr. et Dietr. Spec. Pl. 1. 573.—Species hirsutie, foliorum forma et corollæ magnitudine valde variabilis et forsan plures in una con-

fusæ, sed speciminibus siccis non distinguendæ. Calyx fructifer 8-10 lin. longus.

Hab. in omni fere India præsertim montana, *Wallich, &c.*

4. T. CORDIFOLIA (Roxb. Pl. Corom. 2. 52. t. 161.), foliis ovatis, pedunculis axillaribus subfasciculatis, corollis calyce ovato basi rotundato subduplo longioribus.—Calyx fructifer late alatus, vix 4 lineas longus.

Hab. in montibus Circarensibus, *Roxburgh*, Mussooree, *Royle.*

5. T. PARVIFLORA (Hamilt. in Wall. Cat. n. 3958.), foliis ovatis, floribus axillaribus subfasciculatis, corollis calycem linearem basi attenuatum vix excedentibus. — *Nortenia Thouarsii*, Cham. et Schlecht. in Linnæa, 3. 18.

Hab. ad Goalpara *Hamilton*, Regno Birmannico, *Wallich.* — Eandem legit cl. *Salzmann* prope Bahia in Brasilia, et citatur a cl. *Chamisso et Schlechtendal* ex Rio Janeiro et in Mauritio et Madagascar.

6. T. POLYGONOIDES, procumbens, foliis subrotundis, pedunculis axillaribus umbellatim 3-4-floris, calcycibus campanulatis late trialatis, corollæ tubo breviter exserto.—*Herpestes polygonoides*, Benth. in Wall. Cat. n. 3897.

Hab. ad Singapore, *Wallich.*

Torenia diffusa, Roxb. Fl. Ind. 3. 95, *T. varians*, Roxb. l. c. 96, and *T. multiflora*, Roxb. l. c., are evidently *Vandelliæ*, but I am unable to determine the species to which they should be respectively referred.

XIX. ARTANEMA, *Don.*

Calyx 5-partitus, subæqualis. Corolla infundibuliformis vel campanulata, limbo quadrifido subbilabiato, lacinia suprema latiore, tubo intus 4-squamato. Stamina fertilia 4, didynama, 2 superiora brevia filamentis integris, 2 inferiora ad basin labii inferioris inserta, filamentis elongatis arcuatis basi appendice obtuso brevi auctis. Antheræ per paria cohærentes, loculis divaricatis confluentibus. Capsula sub-globosa, bivalvis, valvulis integris margine planis, dissepimento parallelo placentifero demum libero.

Herbæ glabræ habitu *Sesamo*, characteribus *Toreniæ*, affines. Folia opposita, subserrata. Flores in racemis terminalibus oppositi, breviter pedunculati.

1. A. ANGUSTIFOLIUM, foliis anguste lanceolatis, corollis subinfundibuliformibus calyce triplo longioribus.—*Diceros angustifolius*, Benth. in Wall. Cat. n. 3885.

Hab. ad Singapore, *Wallich.*

2. A. SESAMOIDES, foliis oblongo-vel ovato-lanceolatis, corollis subcampanulatis, calyce duplo longioribus.—*Columnea longifolia*, Linn. Mant. 90.—*Achimenes sesamoides*, Vahl. Symb. 2. 71.—

Diceros longifolius, Pers. Syn. 2. 164.—Benth. in Wall. Cat. n. 3884.

Hab. in Peninsula, *Wight*, *&c.*

Tribus IV. Buchnereæ.

Corolla tubo tenui, limbo subplano 4-5-fido, laciniis sæpe bifidis. Stamina fertilia 4, didynama, adscendentia. Antheræ uniloculares vel loculis demum confluentibus. Capsula bivalvis, valvulis integris bifidisve.

XX. Buchnera, *Linn.*

Calyx tubulosus, 5-dentatus vel 5-fidus. Corollæ tubus rectus vel apice incurvus, limbus subæqualis vel bilabiatus, labiis planis, superiore bifido, inferiore trifiido. Stamina inclusa. Antheræ per paria approximatæ, lineares, loculis divaricatis confluentibus. Capsulæ valvulæ integræ, medio septiferæ, elastice dehiscentes, dissepimento fisso medio placentifero, placenta columnari demum libera.

Herbæ erectæ, sæpius scabræ, siccitate nigricantes. Folia inferiora opposita, superiora alterna, interdum omnia squamæformia, suprema parva. Flores sæpius sessiles, nunc axillares solitarii, nunc racemosi vel imbricato-spicati.

Sect. 1. Campuleia. *Calyx semi-5-fidus. Corollæ tubus apice incurvus, limbus subæqualis.—Herbæ plerumque (an constanter) parasiticæ in radices plantarum, more Orobanchidum.*

* *Folia parva squamæformia.*

1. B. orobanchioides (Br.?—Endl. in Bot. Zeit. 1832. 2. 388. t. 2.), glabra, ramosa, foliis minutis squamæformibus, floribus sessilibus superioribus confertis.—*B. hydrabadensis*, Roth. Nov. Pl. Spec. 292.—*B. gesnerioides*, Willd. Spec. 3338.—*Orobanche indica*, Spreng. Syst. 2. 817, non Roxb.—Habitus *Orobanchidis* nec ulla cum *Gesneria* similitudo, idcirco nomen optimum Brownii, etsi posterius, servavi.

Hab. in Hindustania et Peninsula, *Wight*, *&c.* ad Saharunpur, *Royle*, et in Africa tropica tam occidentali quam orientali unde exemplaria plura vidi.

** *Folia linearia, floralia caulinis conformia.*

2. B. coccinea (Benth. in Wall. Cat. n. 3870.), glabriuscula, scabra, foliis elongato-linearibus, calycibus oblongis 10-15-striatis, corollis (coccineis) glabris.—*Campuleia coccinea*, Hook.

Hab. in ins. Mauritio, *Telfair*, in Peninsula? *Heyne*, ad Macao, *Herb. Banks.*

3. B. asiatica (Linn. Spec. 879.), glabriuscula, scabra, foliis

elongato-linearibus, calycibus 10-15-striatis oblongis, corollis (cærulescentibus) glabris.—*B. euphrasioides*, Benth. in Wall. Cat. n. 3868, non Vahl.

Hab. in Napalia et montibus Avæ, *Wallich*.

4. B. HIRSUTA (Wall. Cat. n. 3869.), hirsuto-scaberrima, foliis elongato-linearibus, calycibus oblongis 10-15-striatis, corollis (flavis) glabris.

Hab. in Peninsula, *Wight*, Bengala, *Wallich*, Saharunpur, *Royle*.

5. B. PHŒNICEA (Wall. Cat. n. 3874.), humilis, villosa, scaberrima, foliis lanceolato-linearibus obtusis, calycibus ovatis 10-striatis, corollis (phœniceis) glabris.

Hab. in Peninsula, *Wight, &c.*

6. B. DENSIFLORA, humilis, glabra, scaberrima, foliis lanceolato-linearibus subsquarrosis, floribus densis approximatis, calycibus ovatis 5-costatis, corollis (cæruleis) glabris.—B. *asiatica*, Benth. in Wall. Cat. n. 3873, non Linn.

Hab. in Peninsula, *Heyne, &c.* in India septentrionali, *Royle*.

B. *humifusa*, Vahl, fide exemplare Forskahleano in herbario Banksiano servato, huic simillima est.

7. B. EUPHRASIOIDES (Vahl. Symb. 3. 81.), glabriuscula, scabra, foliis linearibus oblongatis, calycibus oblongis sub-15-striatis, corollæ tubo pubescente.—*B. bifida*, Hamilt. Benth. in Wall. Cat. n. 3872.—*B. angustifolia*, Don, Prod. Fl. Nep. 91.

Hab. in omni fere India; a Peninsula, *Wight*, ad montes Indiæ septentrionalis, *Royle, Wallich*.

8. B. MASURIA (Hamilt. in Wall. Cat. n. 3877.), elata, scaberrima, foliis calycibusque elongatis adpressis, corollæ tubo elongato tenuiter pubescente, limbo amplo.—*B. Wallichii*, Benth. in Wall. Cat. n. 3876.—Corollæ duplo majores quam in B. *euphrasioide*.

Hab. in montibus Morang, *Hamilton*, Prome, *Wallich*.

SECT. 2. PIRIPEA, *Aubl. Calyx 5-dentatus. Corollæ tubus subrectus. Herbæ substantivæ? Folia caulina ovata oblonga vel linearia, floralia bracteæformia.*

9. B. HISPIDA (Hamilt. in Don. Prod. Fl. Nep. 91.), piloso-hispida, foliis caulinis oblongis subdentatis, superioribus linearibus, floribus distantibus, corollæ tubo vix exserto.—Wall. Cat. n. 3875.

Hab. in montibus Indiæ septentionalis, *Royle, Wallich*.

10. B. CRUCIATA (Hamilt. in Don. Prod. Fl. Nep. 91.), pubescens, foliis radicalibus obovatis, caulinis inferioribus oblongis superioribus linearibus, floribus tetragono-spicatis imbricatis, corollæ tubo calyce subduplo longiore.—Wall. Cat. n. 3879.

Hab. in Napalia, Prome, *Wallich*.

11. B. TETRASTICHA (Wall. Cat. n. 3878.), glabriuscula, elata, rigida, foliis oblongis obtusis integerrimis basi amplexicaulibus, flo-

ribus tetragono-spicatis imbricatis, corollæ tubo calyce subduplo longiore.

Hab. ad Moolmyne, ripas Salian, et Phonac, *Wallich.*

XXI. Sutera. *Roth.*

Calyx 5-partitus, subæqualis. Corolla infundibuliformis, limbo vix patente, laciniis 5 brevissimis integris æqualibus. Stamina inclusa, didynama, antheris bilocularibus, loculis parallelis. Capsula bisulcata, valvulis bifidis, dissepimento e marginibus valvularum inflexis, columna placentifera demum libera.

Herbæ basi ramosissimæ vel diffusæ. Folia opposita, pinnatifida. Flores pedicellati, solitarii, axillares, oppositi, vel superiores alterni racemosi.

1. S. glandulosa (Roth. Nov. Sp. Pl. 291.), glandulosopilosa, viscosa, foliorum laciniis incisis, floribus superioribus alternis racemosis, sepalis obtusis.—Wall. Cat. n. 3941.

Hab. in Peninsula, *Wight,* ad Tikari, *Hamilton.*

Tribus V. Buddleeæ.

Corolla tubo recto, limbo plano patente æqualiter 4-fido. Stamina fertilia 4, æqualia. Antheræ distantes, biloculares. Capsula 2-valvis.

XXII. Buddlea, *Linn.*

Calyx brevis, campanulatus, regularis, 4-fidus. Corolla et stamina ut in charactere tribus. Stylus simplex, stigmate clavato vel capitato integro. Capsula septicide bivalvis, valvulis bifidis bipartitis vel rarius integris.

Frutices sæpe tomentosi. Folia opposita, integra, sæpius dentata. Flores sæpius sessiles glomerulati, glomerulis sessilibus pedicellatisve, axillaribus vel in racemis dispositis, racemis simplicibus vel paniculato-ramosis.

1. B. macrostachya (Benth. in Wall. Cat. n. 6407.), ramis acute tetragonis alatisve vix tomentosis, foliis oblongo-lanceolatis utrinque longe angustatis apice serratis supra glabris subtus albido-tomentosis, spicis interruptis simplicibus tomentosis, floribus sessilibus inferioribus glomeratis superioribus sparsis.

Hab. ad Sillet, *Wallich.*

2. B. discolor (Roth. Nov. Pl. Spec. 83.), arborea, ramis subteretibus ad axillas compressis tomentosis, foliis lanceolatis subserratis supra glabris subtus pallidis vel albo-tomentosis, spicis interruptis gracilibus simplicibus paniculatisve, bracteis lanceolato-linearibus, floribus subsessilibus subglomeratis, capsulis reflexis.—*B. salicina*, Lam. Illustr. 1. 291? (nomen non servandum ob *B. salici-*

foliam, Vahl. et *B. salignam* Willd.)—*B. Neemda*, β. Benth. in Wall. Cat. n. 6401, H—O.

Hab. in Napalia, Oude, Rungpur, &c. *Wallich.*

3. B. NEEMDA (Hamilt. in Roxb. Fl. Ind. ed. Car. et Wall. l. 411.), arborea, ramis subteretibus ad axillas compressis tomentosis, foliis lanceolatis subserratis supra tenuissime pubescentibus subtus albo-tomentosis, spicis interruptis simplicibus, bracteis ovato-lanceolatis, floribus sessilibus glomeratis, capsulis erecto-patentibus.—*B. serrulata*, Roth. Nov. Pl. Sp. 82.—*B. subserrata*, Don. Prod. Fl. Nep. 92.—*B. Neemda*, Wall. Cat. n. 6401, A—G.

Hab. in Peninsula, Oude, Penang, *Wallich*, Deyra Dhoun, *Royle.*

4. B. MADAGASCARIENSIS (Vahl. Symb. 3. 14.), arborea, ramis subteretibus dense tomentosis, foliis petiolatis ovato-lanceolatis subintegerrimis basi rotundatis crassis rugosis supra glabris subtus dense tomentosis, racemis subsimplicibus, pedicellis sparsis 3-5-floris.—Wall. Cat. n. 6402.

Hab. in Madagascaria, unde in Horto Calcuttensi colitur.

5. B. PANICULATA (Wall. in Roxb. l. c. 412.), arborea, ramis divaricatis dense tomentosis, foliis lanceolato-oblongis integerrimis basi rotundatis cuneatisve crassis rugosis utrinque vel subtus rufo-tomentosis, racemis densis paniculatis, floribus subsessilibus densissime glomeratis.—Wall. Cat. n. 6403.

Hab. in Napalia, *Wallich.*

6. B. CRISPA (Benth. in Wall. Cat. n. 6404.), ramis divaricatis dense tomentosis, foliis ovato-lanceolatis margine crenato-crispis, basi inferioribus cordatis superioribus rotundatis, omnibus crassis rugosis utrinque molliter tomentosis, racemis brevibus densis subramosis, floribus sessilibus, glomerulis densis subpedicellatis.

Hab. in Oude et Sillet, *Wallich*, in montibus Syen, *Royle.*

7. B. MISSIONIS (Wall. Cat. n. 6405.), ramis pubescentibus, foliis oblongis utrinque angustatis integerrimis coriaceis supra glabris lævibus subtus pubescentibus, panicula ovato-pyramidali multiflora, racemulis oppositis, glomerulis subsessilibus, corollis tenuibus glabris.

Hab. in Peninsula? ad Wynaad, *Herb. Madr.*

B. acuminata, Poir. huic affinis videtur.

8. B. DIVERSIFOLIA (Vahl. Symb. 3. 15.), ramis divaricatis, foliis lato-ovatis integerrimis repandisve utrinque glabris vel junioribus ferrugineo-tomentosis, florum glomerulis axillaribus 3-5-floris folio brevioribus.—Wall. Cat. n. 6416.

Hab. in Java, unde in Horto Calcuttensi colitur.

TRIBUS VI. VERONICEÆ.

Corolla rotata, infundibuliformis, vel rarius irregulariter bilabiata. Stamina fertilia nunc 4 subæqualia exserta

distantia, nunc 2 superiora fertilia, inferiorum vestigiis nullis. Stylus simplex, stigmate tenui vel rarius incrassato capitato. Capsula bivalvis, loculicide dehiscens, valvulis sæpissime septicide bifidis bipartitisve. Semina nuda vel testa laxa arillæformi inclusa.

XXIII. Calorhabdos. *Benth.*

Calyx 5-partitus. Corolla tubulosa, incurva, limbo erecto oblique 2-3-fido, lacinia inferiore minore. Stamina 2, ad latera laciniæ corollinæ superioris inserta, inferiorum vestigia nulla. Antheræ biloculares, loculis parallelis apice confluentibus. Stigma vix incrassatum. Capsulæ valvulæ bipartitæ. Semina numerosa membrana crispa alata.

1. C. Brunoniana.—*Veronica? Brunoniana*, Wall. Cat. n. 405.—Herba erecta, glabra, subsimplex, $1\frac{1}{2}$-2-pedalis. Folia oblongo-lanceolata, leviter et acute serrata, basi in petiolum brevem angustata. Spica semipedalis. Flores sessiles, glomerati.

XXIV. Veronica. *Linn.*

Calyx 4- raro 5-partitus, campanulatus vel compressus. Corolla tubo brevissimo vel rarius elongato, limbo 4-partito, laciniis omnibus integerrimis patentibus planis, supremo latiore. Stamina 2, ad latera laciniæ corollinæ supremæ sita, divergentia, inferiorum vestigia nulla. Antheræ biloculares, loculis apice confluentibus. Stigma vix incrassatum. Capsulæ valvulæ medio septiferæ vel bipartibiles. Semina nuda.

Herbæ, suffrutices, fruticesve. Folia opposita, alterna vel verticillata. Inflorescentia axillaris, racemosa vel spicata. Flores sæpius cæruleæ vel albæ.

Sect. I. Veronica, (*Reichb.*) *Semina oblonga.*

**Racemi axillares.*

1. V. Beccabunga (Linn. Spec. 16.), glaberrima, subcarnosa, caule basi repente, foliis breviter petiolatis ovalibus oblongisve crenato-serratis integerrimisve, capsula subrotunda integra vel vix emarginata.—V. *punctata*, Hamilt. in Don. Prod. Fl. Nep. 93.

Hab. in Napalia, *Hamilton*, Kanaour, *Royle*.

2. V. Anagallis (Linn. Spec. 16.), glaberrima, erecta, basi radicans, foliis oblongo-lanceolatis lanceolatisve serratis basi cordato-amplexicaulibus subconnatisve, racemis oppositis multifloris, capsulis subrotundis vix emarginatis.—V. *undulata*, Wall. in Roxb. Fl. Ind. ed. Car. et Wall. 1. 147.—Cat. n. 406.

Hab. in Napalia, Sillet, et Hindustania, *Wallich*, Kanaour, *Royle*.

3. V. himalensis (Don. Prod. Fl. Nep. 92.), pubescenti-hirta vel demum glabrata, foliis sessilibus ovatis vel ovati-oblongis inciso-

crenatis junioribus hirtis, racemis oppositis longe pedunculatis, calycibus inæqualiter 5-partitis, capsulis ovatis acutis calycem superantibus.—V. *grandiflora*, Wall. Cat. n. 403.

Hab. in Gossain Than, *Wallich.*

4. V. LAXA, parce pilosa, foliis subsessilibus ovatis vel ovato-oblongis inciso-serratis pilosiusculis, racemis alternis, calycibus 4-partitis, capsulis subrotundis emarginatis hirtis.

Hab. ad Kidarkonta, *Royle.*

5. V. DELTIGERA (Wall. Cat. n. 402.), basi procumbens, caule glabro sub foliis bifariam lanato, foliis sessilibus ovato-lanceolatis crenato-serratis glabris, racemis alternis paucis pubescentibus, calycibus 4-partitis, capsulis (immaturis) rhombeo-dilatatis emarginatis.

Hab. ad Gossain Than Emodi, *Wallich.*

6. V. CANA (Wall. Cat. n. 401.), basi procumbens, caule piloso vel lanato, foliis petiolatis ovatis inciso-crenatis junioribus canohirtis demum glabratis, racemis paucis axillaribus terminalibusque, calycibus inæqualiter 4-partitis, capsulis late rhombeo-dilatatis integris.

Hab. in Gossain Than et Napalia, *Wallich*, in Kanaour, *Royle.*

***Racemi terminales.*

7. V. LANOSA (Royle, MSS.), caule basi lignoso, ramis cæspitosis suberectis lanatis, foliis sessilibus ovato-lanceolatis inciso-serratis supra glabris subtus piloso-hirtis, racemis laxiusculis, calycibus inæqualiter 4-5-partitis, capsulis (immaturis) ovatis acutis.

Hab. in Kanaour, *Royle.*

8. V. ALPINA (Linn. Spec. 15.), pilosa vel demum glabra, caule simplici, foliis sessilibus ovalibus oblongisve subserratis, racemo terminali conferto subcapitato articulato-piloso, staminibus corolla brevioribus, capsulis ovalibus emarginatis.—Exemplaria Europeanis parum villosiora, cæterum omnino conformia.

Hab. ad Peer Punjal, *Royle.*

9. V. CAPITATA (Royle, MSS.), pilosa, caule simplici, foliis sessilibus ovato-rotundatis subdentatis, racemo terminali conferto capitato articulato-piloso, staminibus subexsertis.—Flores duplo majores quam in V. *alpina ;* capsulas non vidi.

Hab. in Kanaour, *Royle.*

10. V. SERPYLLIFOLIA (Linn. Spec. 15.), humilis, basi repens, caule adscendente pubescente, foliis subsessilibus ovalibus oblongisve integris subcrenatisve glabris, racemo elongato, capsulis late obcordatis.

Hab. in jugo Himalayano, *Royle.*

SECT. 2. COCHLIDIOSPERMA (*Reichb.*) *Semina navicularia.—Herbæ annuæ, pedicellis axillaribus unifloris.*

11. V. BILOBA (Linn. Mant. 172.), caule erectiusculo pubescente, foliis subsessilibus oblongis lanceolatisve integerrimis serratisve, ca-

lycibus quadripartitis corollam superantibus, capsulis bilobis, lobis stylo longioribus calyce brevioribus.

Hab. in monte Choor, *Royle.*

12. V. AGRESTIS (Linn. Spec. 18.), caule procumbente pubescente, foliis petiolatis lato-ovatis crenato-serratis, pedicellis capsula 2-3-plo longioribus, fructiferis reflexis, capsulis subrotundo-bilobis turgidis.

Hab. ad Saharunpur, *Royle.*

XXV. WULFENIA, *Jacq.* non *Wall.*

Calyx 4-5-partitus. Corolla tubulosa, declinata, limbo 4-5-fido, laciniis rectis vel vix patentibus, supremo emarginato vel bifido, lateralibus integris, infinio integro vel lato crenato. Stamina 2, ad latera laciniæ corollinæ supremæ sita, inferiorum vestigia nulla. Antheræ biloculares, loculis apice demum confluentibus. Stylus simplex, stigmate truncato vel incrassato-bilobo. Capsulæ valvulæ medio septiferæ, apice bifidæ.

Herbæ subacaules. Folia radicalia petiolata. Scapi nudi, multiflori, erecti. Flores unilaterales, penduli, ad axillas bractearum solitarii, breviter pedicellati.

1. W. AMHERSTIANA, foliis oblongis basi angustatis duplicato- vel inciso-crenatis, corollæ tubo recto, limbi laciniis omnibus acutissimis. —*Pæderota Amherstiana,* Wall. Cat. n. 410.—Habitus *W. Carinthiacæ.*

Hab. in Kamaon, *Wallich*, Kanaour, *Royle.*

Species alteræ hujus generis sunt :—

W. CARINTHIACA (Jacq. Misc. 2. 62. t. 8. f. 1.), foliis oblongis basi angustatis duplicato-crenatis, corollæ tubo basi supra gibboso, limbi laciniis rotundatis infima crenata.—Alpes Carinthiacæ.

W. RENIFORMIS (Dougl. MS.), foliis reniformibus duplicato-crenatis, corollæ tubo recto, laciniis rotundatis, infima crenata.—Montes prope flumen Columbia in America boreali. *Douglas.*

XXVI. GYMNANDRA. *Pall.*

Calyx spathaceus hinc fissus, vel bipartitus, laciniis integris dentatisve. Corolla tubulosa, limbo subbilabiato, labio superiore integro emarginato vel bifido, inferiore 2-4-fido, laciniis omnibus planis. Stamina 2, ad latera labii superiores sita, inferiorum vestigia nulla. Antheræ biloculares loculis apice subconfluentibus. Stigma truncatum vel incrassato-capitatum.—Capsula mihi ignota.

Herbæ erectæ glabræ, siccitate nigricantes. Caules e collo plures simplices. Folia radicalia petiolata, caulina minora, suprema sæpe squamæformia. Flores ad axillas bractearum sessiles, in spica terminali congesti.*

* De speciebus Sibiricis confer Cham. et Schlecht. in Linnæa, 2. 562.

1. G. Kunawurensis (Royle MSS.), foliis radicalibus ovatis subinciso-dentatis basi rotundatis angustatisve, staminibus ad basin labii superioris brevissimis, stylo stamina æquante stigmate incrassato bilobo.—Affine videtur, *G. Gmelini*, Cham. et Schlecht. sed spica tenuior. Corollæ labium inferius 4-fidum, an constanter?

Hab. in Kanaour (Kunawur), *Royle.*

2. G. Cashmeriana (Royle MSS.), foliis radicalibus oblongis grosse crenatis integerrimisque basi longe angustatis, spica brevi ovata, corollis apice incurvis, staminibus labium superius subsuperantibus, stylo eo breviore.—Corollæ labium inferius sæpius bifidum.

Hab. in Cashmeria, *Royle,*

XXVII. Picrorhiza, *Royle.*

Calyx campanulatus, subæqualiter 5-fidus. Corolla campanulata, calyce brevior, subæqualiter 4-fida, laciniis integerrimis. Stamina 4, ad faucem corollæ inserta, subæqualia, divergentia, longe exserta. Antheræ biloculares, loculis apice confluentibus. Stigma vix incrassatum. Capsulæ valvulæ medio septiferæ, bipartibiles, dissepimento duplicato. Semina intra membranam vesiculosam arilliformam fere inclusa.

1. P. Kurroa (Royle, Illustr. Bot. Himal. t. 71.)—*Veronica? Lindleyana,* Wall. Cat. n. 404.—Herba subacaulis. Folia radicalia oblonga, basi in petiolum angustata, apice serrato-crenata, glabra vel pilis paucis brevibus conspersa. Scapi nudi erecti. Flores sessiles, dense spicati.

Hab. in Gossain Than et Kamaon, *Wallich*, ad Kidarkonta. *Royle.*

XXVIII. Ourisia. *Commers.? Br.?*

Calyx campanulatus, subæqualis, 5-fidus. Corolla infundibuliformi-campanulata, limbo 5-fido subæquali, laciniis integris obtusis. Stamina 4, subæqualia, distantia. Antheræ biloculares, loculis linearibus muticis parallelis. Stylus brevis, stigmate integro vel emarginato. Capsulæ valvulæ medio septiferæ.

Herbæ repentes. Folia opposita. Pedunculi axillares vel terminales, uniflori.

1. O. pinnata (Wall. MSS.), piloso-hispida, foliis pinnatisectis, segmentis oblongo-cuneatis incisis.—*Mazus pinnatus,* Wall. Cat. n. 3915.—Capsula ut in *Sibthorpia* apice unilocularis videtur, sed in exemplaribus suppetentibus immatura est et siccatione nimis compressa.

XXIX.? Hemiphragma. *Wall.*

Calyx 5-partitus. Corolla tubulosa, limbo 5-fido, subbilabiato, laciniis inferioribus parum latioribus. Stamina 4, basi corollæ in-

serta, subæqualia, distantia. Antheræ biloculares, loculis parallelis. Stylus simplex stigmate vix incrassato. Capsula baccata, biloculari, bivalvis, valvulis bipartitis, dissepimento parallelo apice bifido, placentis adnatis. Semina numerosa, nuda.

1. H. HETEROPHYLLUM (Wall. Tent. Fl. Nep. 17. t. 8.),—Herba procumbens, ramis flagelliformibus. Folia caulina subrotundo-cordata, crenata, pilosiuscula. Ramuli in axillis abbreviati, foliis brevibus linearibus integerrimis ciliatis obtecti. Flores intra hæc solitarii, sessiles. Capsulæ pisi magnitudine, lucidæ.—Wall. Cat. n. 3895.

Hab. in Napalia, *Wallich*, ad Jumnotri, *Royle*.

TRIBUS VII. GERARDIEÆ.

Corolla campanulata, infundibuliformis vel tubulosa, limbo 5-fido, laciniis rotundatis planis. Stamina fertilia 4, adscendentia. Antheræ approximatæ, 2-loculares, loculis discretis parallelis sæpe acuminatis. Stylus simplex, stigmate obtuso sæpius elongato lanceolato vel linguaformi. Capsula 2-valvis, loculicide vel septicide dehiscens, valvulis integris bifidisve. Semina sæpissime testa membranacea laxa arillæformi inclusa.

XXX. GERARDIA, *Linn.*

Calyx campanulatus, 5-dentatus vel 5-fidus. Corolla campanulata vel subinfundibuliformis, 5-loba, lobis rotundatis, 3 inferioribus maioribus. Stamina 4, didynama, corolla breviora. Antheræ per paria approximatæ, loculis parallelis transversalibus acutis vel calcaratis. Stigma oblongum vel lineare, incrassatum, integrum vel subbifidum. Capsula loculicide tantum vel loculicide et septicide dehiscens, valvulis integris bifidisve. Seminum testa arillæformis, vesiculosa vel alato-crispa.

Herbæ rigidæ, siccitate cito nigricantes. Folia opposita vel superiora alterna, pinnatisecta vel pinnatifida, rarius integra, laciniis sæpissime linearibus integerrimis. Pedicelli alterni vel inferiores oppositi uniflori, floribus sæpissime in racemis terminalibus dispositi.

SECT. 1. GERARDIA. *Antheræ mucronatæ, loculis æqualibus. Capsula obtusa vel emarginata, valvulis integris.*

1. G. PARVIFLORA (Benth. in Wall. Cat. n. 3888.), caule elato acute tetragono, foliis subbipinnatifidis laciniis anguste linearibus, racemis numerosis virgatis in paniculam amplam dispositis, bracteis minimis, dentibus calycinis brevissimis acutis, corollis calyce vix dimidio longioribus.—Corolla vix $1\frac{1}{2}$ lin. longa. Capsula ovoideo-globosa, parum compressa.

Hab. in Kamaon, *Wallich*.

Ad hanc sectionem species Americanæ angustifoliæ fere omnes referendæ. G. *pedicularis*, *quercifolia*, &c. sectionem alteram (*Pedicularoides*) constituunt, antheris aristatis, capsulis acuminatis.

Sect. II. Sopubia. *Antheræ mucronatæ, loculo altero minore casso. Capsula obtusa, plus minusve quadrivalvis, dissepimento duplicato, apice vel fere ad basin dehiscentia soluto. Habitus omnino Gerardiæ.*

2. G. DELPHINIFOLIA (Lin. Spec. 848.), ramosissima, lævis, foliis pinnatifidis laciniis anguste linearibus, dentibus calycinis linearisubulatis tubo longioribus.—Wall. Cat. n. 3890.—Corolla 7-8 lin. longa.

β. parviflora—G. *Heyneana*, Benth. in Wall. Cat. n. 3891.—Corolla 5-6 lin. longa.

Hab. in Peninsula, *Roxburgh, &c.* ad Lohargan, *Royle*.

3. G. STRICTA (Benth. in Wall. Cat. n. 3887.), aspera, rigida, subramosa, foliis lanceolato-linearibus hinc inde dentatis incisisve, dentibus calycinis lanceolatis acutis nudis tubo multo brevioribus. —Corolla G. *delphinifoliæ*. Capsula basi globosa apice compressa.

Hab. in montibus Prome et Moolmyne in Martabania, *Wallich.*

4. G. SCABRA (Wall. Cat. n. 3889.), rigida, ramosa, foliis pinnatisectis, laciniis linearibus scabris, dentibus calycinis ovatis margine ciliato-membranaceis tubo multo brevioribus.—*Sopubia trifida*, Hamilt. in Don Prod. Fl. Nep. 88.

Hab. in Napalia et Kamaon, *Wallich.* in Mussooree, *Royle*, ins. Ceylon, *Macrae*.

XXXI. Glossostylis, *Cham. et Schlecht.*

Calyx campanulatus 4-5-dentatus. Corolla oblique campanulata, breviter 5-loba, limbo inferne majore. Stamina 4, didynama. Antheræ biloculares, loculis subparallelis acutis. Stylus incurvus, stigmate linguæformi incrassato recurvato. Capsula obtusa vel emarginata, valvulis subbifidis loculicide dehiscentibus. Semina intra membranam lineari-cuneatam tenuissimam minima.

Herbæ asperæ, erectæ, habitu fere *Melampyri*. Folia opposita, sinuato-dentata, floralia (seu bracteæ) basi latiora profundius dentata, apice acuminata. Flores subsessiles, solitarii, alterne spicati.

1. G. AVENSIS, foliis ovato-lanceolatis lanceolatisve basi cuneatis brevissime petiolatis cauleque tuberculoso-asperis, calycis dentibus latis acutis bracteisque ciliatis.—*Hymenospermum dentatum*, Benth. in Wall. Cat. n. 3963.

Hab. ab Taong Dong montem Avæ, *Wallich.*

Species alteræ sunt:—

G. ASPERA (Cham. et Schlecht. in Linnæa, 3. 22.), foliis subsessilibus oblongo-lanceolatis basi truncato-cordatis cauleque hispidis asperrimis, calycis dentibus latis acutis bracteisque hispidis.—Bahia *Salzmann*, Rio Janeiro, *Chamisso*.

G. CAPENSIS, foliis subsessilibus ovatis acuminatis cauleque tuberculis minutis scabris lævibusque, dentibus calycinis anguste lanceolatis acutissimis bracteisque nudis glabris.—*Rhinanthus scaber*, Thumb. Prod. Fl. Cap. 98.?—*Bartsia scabra*, Spreng. Syst. 2. 773.—Ad Caput Bonæ Spei.

XXXII. CENTRANTHERA, *Br.*

Calyx compressus, hinc fissus, integer vel demum sub-4-fidus. Corolla tubulosa vel infundibuliformis, limbo patente vel bilabiato, lobis 5 rotuudatis inferioribus majoribus. Stamina corolla breviora. Antheræ per paria approximatæ, biloculares, loculis parallelis transversalibus mucronatis vel calcaratis. Stigma oblougum incrassatum. Capsula ovoidea vel oblonga, bivalvis, valvulis integris. Semina minuta, testa laxa arillæformi.

Herbæ erectæ vel diffusæ, scabræ, rigidæ, siccitate vix nigricantes. Folia subsessilia, opposita, oblonga vel lanceolata, integerrima vel paucidentata. Flores sessiles, alterni vel inferiores oppositi, sæpius secundi, inferiores remoti, superiores interdum spicati.

1. C. GRANDIFLORA (Benth. in Wall. Cat. n. 3880.), erecta, glabra, tuberculoso-scabra, floribus secundis approximatis amplis, calycibus oblongo-inflatis, hinc fissis inde acutissimis.—Calyx 9 lin., corolla 21 lin. longa.

Hab. in montibus? Sillet, *Wallich.*

2. C. BRUNONIANA (Wall. Cat. n. 3882.), erecta, hispida, floribus remotis, calycibus oblongis hinc fissis inde acutis.—Calyx 5-6 lin., corolla 12-14 lin. longa.

Hab. ad Moolmyne in Martabania, *Wallich.*

3. C. HISPIDA (Br. Prod. 438.), erecta, cano-hispida, floribus remotis, calycibus ovatis hinc fissis inde acutis 2-3-fidisve.—Calyx circiter 3 lin., corolla 7-8 lin. longa.—Wall. Pl. As. Rar. 1. 39. t. 45. —Cat. n. 3881.—C. *Nepalensis*, Don. Prod. Fl. Nep. 88.—*Digitalis stricta*, Roxb. Fl. Ind. 3. 99.

Hab. in tota Hindustania, Napalia, Kamaon, et montibus Prome, *Wallich*, ad Kidarkonta, *Royle.*

4. C. HUMIFUSA (Wall. Cat. n. 3883.), diffusa, humilis, ramosissima, glabriuscula, floribus distantibus, calycibus ovatis hinc fissis inde acutiusculis bifidisve.—*Razumovia tranquebarica*, Spreng. Syst. 2. 812?—Calyx vix 2 lin., corolla 4 lin. longa.

Hab. in Peninsula, *Wight*, ad Nathpur, *Hamilton.*

TRIBUS VIII. RHINANTHEÆ.

Corollæ limbus bilabiatus, labio superiore concavo galeato vel lineari, integro vel emarginato, inferiore patente trifido. Stamina fertilia 4 (rarius 2) adscendentia. An-

theræ biloculares, loculis discretis parallelis sæpe acuminatis. Stylus simplex. Capsula bivalvis loculicide dehiscens, valvulis sæpissime integris. Semina nunc testa laxa arillæformi inclusa, nunc nuda vel alata.

XXXIII. Euphrasia, *Linn.*

Calyx campanulatus, 4-fidus. Corollæ labium superius galeatum, emarginatum, inferius majus, patens, lacinia media emarginata. Stamina 4 fertilia, superiorum locula infima longius calcarata. Capsula oblongo-ovata compressa emarginata, valvulis integris. Semina pauca, testa membranacea substriata.

Herbæ humiles. Folia opposita vel alterna, suprema (floralia) sæpius latiora. Flores sessiles, solitarii, ad apices ramorum subspicati.

1. E. officinalis (Linn. Spec. 841.), glabra vel pubescens, nec scabra, foliis floralibus ovatis subrotundisve acute dentatis calyces æquantibus vel superantibus, dentibus calycinis acutis tubum corollæ glabræ subæquantibus.—Var. elatior, pubescens, simplex vel ramosa. —E. *depauperata*, Benth. in Wall. Cat. n. 3886.—E. *simplex*, Don, Prod. Fl. Nep. 95.—Omnes *Euphrasiæ* veræ Europeanæ et Asiaticæ, hujus ut videtur varietates sunt. Varietates Himalayanæ inter vulgares Europæanas et E. *tataricum*, Fisch. (Ledeb. Fl. Alt. 2. 423.) ambiunt. Species cæteræ generis sunt omnes vel Australasicæ vel Austro-Americanæ (Chilenses.)

Hab. in jugo Himalayano; in Kamaon, *Wallich*, ad Kidarkonta et in Cashmeria, *Royle*.

XXXIV. Siphonostegia, *Benth.*

Calyx infundibuliformis, tubo elongato, limbo 4-5-partito. Corollæ labium superius incurvum, inferius brevius laciniis integris. Stamina 4. Antherarum loculi paralleli, basi acuti, mutici. Stigma incrassato-capitatum. Capsula oblonga, recta, valvulis integris.

1. S. Chinensis.—Herba erecta, ramis virgatis tenuissime pubescentibus. Folia inferiora opposita, superiora alterna, pinnatifida, laciniis incisis acutis lanceolatis. Flores sparsi, subdistantes, subsessiles, in spicis interruptis racemisve terminalibus dispositi.

Hab. ad Macao Sinensium, *Vachell.*

XXXV. Pedicularis. *Linn.**

Calyx 5-fidus, 5-dentatus, vel inæqualiter 2-3-dentatus. Corollæ labium superius galeatum, elongatum, sæpius incurvum, inferius trifidum, clausum vel sæpius patens. Stamina 4. Antherarum lo-

* Confer. Steven. Monographia Pedicularis in Mem. Soc. Imp. Nat. Mosq. vol. 6. p. 1.

culi sæpius acuti, interdum obtusi vel calcarati. Stigma subcapitatum. Capsula oblique mucronata vel rarius globosa recta, valvulis integris. Semina testa membranacea cincta vel rarius nuda.

Herbæ sæpius simplices. Folia alterna, opposita vel verticillata, inciso-dentata vel pinnatifida. Flores sessiles in spicis terminalibus densis interruptisve dispositi.

Sect. I. Personatæ. *Corollæ labia clausa.*

1. P.? avana (Wall. Cat. n. 1007.), diffusa, hirsuta, foliis oppositis pinnatifidis, laciniis brevibus lanceolatis subincisis, calycibus 5-partitis laciniis linearibus integerrimis, corollæ labiis subæqualibus, galea recta obtusa, labio inferiore brevissime triloba.—Vix hujus generis. Capsulæ in exemplare desunt.

Hab. prope Ava versus Taong Dong montem, *Wallich.*

Sect. II. Verticillatæ. *Corolla ringens. Folia verticillata.*

* *Galea rostrata.*

2. P. gracilis (Wall. Cat. n. 413.), elata, paniculato-ramosa, caule bifariam piloso, foliis pinnatifidis, laciniis oblongis obtusis serrulatis incisisve, floribus distantibus, calycibus hinc fissis, dentibus brevibus obtusis integerrimis, galeæ rostro tenui recto —P. *stricta*, Wall. Cat. n. 414.—P. *Brunoniana*, Wall. Cat. n. 422.—Variat foliis plus minusve incisis.

Hab. in Napalia, Gossain Than et Kamaon, *Wallich*, Mussooree, *Royle.*

3. P. pectinata (Wall. Cat. n. 420.), erecta, elata, subsimplex, glabra, foliis pinnatifidis, laciniis lanceolatis acutis serratis pinnatifidisve, spica laxiuscula, calycibus dentibus brevibus integerrimis, galeæ rostro longo apice contorto.

Hab. in Kamaon, *Wallich*, ad Choor, Pyr Pundjal, et versus Cashmere, *Royle.*

4. P. pyramidata (Royle MSS.), erecta, elata, subsimplex, caule quadrifariam piloso, foliis pinnatifidis, laciniis oblongo-lanceolatis obtusis serrato-crenatis subpinnatifidisve, spica denæ vel basi interrupta, calycibus hirsutis, dentibus brevibus acutis integerrimis, rostro lineari contorto galea ipsa duplo longiore.

Hab. in Himalaya versus Cashmere, *Royle.*

5. P. tenuirostris, erecta, elata, subsimplex, caule quadrifariam piloso, foliis pinnatifidis, laciniis ovato-oblongis obtusis crenulatis, spica densa imbricata, calycibus hirsutis, dentibus brevibus integerrimis, rostro apice tenui subcontorto galea ipsa vix longiore.

Hab. ad Pyr Pundjal, *Royle.*

6. P. porrecta (Wall. Cat. n. 423.), humilis, adscendens, subsimplex, caule 2-3-fariam piloso, foliis pinnatifidis, laciniis oblongis obtusis inciso-serratis, spica pauciflora laxiuscula, calycibus glabris, dentibus brevibus subcristatis, galeæ rostro longo tenui incurvo subcontorto.

Hab. in Kamaon, *Wallich*, ad Shalma et versus Cashmere, *Royle*.

7. P. BREVIFOLIA (Don. Prod. Fl. Nep. 94.), caule suberecto, humili, simplici, apice cano-villoso, foliis ovatis villosis pinnatifidis, laciniis brevibus inciso-dentatis, spica densiuscula, calycibus hirsutis, dentibus brevibus cristatis, galeæ rostro tenui longo recto.—P. *lanigera*, Wall. Cat. n. 419.

Hab. ad Gossain Than, *Wallich*.

* * *Galea erostris.*

8. P. MOLLIS (Wall. Cat. n. 415.), caule erecte elato ramoso apice hirsuto, foliis hirsutis simpliciter vel bis pinnatifidis, laciniis oblongo-lanceolatis inciso-serratis, spicis interruptis tenuibus, dentibus calycinis oblongis cristatis, galea recta edentula erostri.—Corollæ tenues vix 4 lin. longi.

Hab. ad Gossain Than, *Wallich*.

9. P. VERTICILLATA (Linn. Spec. 846.), erecta, subsimplex, apice subhirsuta, foliis pinnatisectis pinnatifidisve, laciniis oblongis ovatisve obtusis dentatis, spicis densis vel basi interruptis, dentibus calycinis brevibus integerrimis, galea recta edentula erostri.

Hab. in Kanaour, *Royle*.

SECT. III. SIPHONANTHÆ. *Folia alterna. Corolla ringens, tubo longe exserto, galea falcata rostrata, rostro proboscideo contorto vel uncinato.*

10. P. SIPHONANTHA (Don. Prod. Fl. Nep. 95.), humilis, cæspitosa, glabriuscula, foliis elongatis pinnatisectis, segmentis brevibus oblongis serratis, spicis brevibus, calycibus hirsutis hinc fissis bifidisve cristatis, tubo corollæ calyce quadruplo longiore, galeæ rostro lineari proboscideo contorto emarginato.—Wall. Cat. n. 417.

Hab. in Gossain Than, *Wallich*.

11. P. HOOKERIANA (Wall. Cat. n. 421.), adscendens, subramosa, glabriuscula, foliis pinnatisectis pinnatifidisve, laciniis oblongis ovatisve dentatis vel pinnatifidis, calycibus hirsutis hinc fissis bifidisve cristatis, tubo corollæ calyce subtriplo longiore, rostro proboscideo contorto emarginato.—Corolla rubro-purpurea vel alba.

Hab. in Kamaon, *Wallich*, ad Simla et in Cashmeria, *Royle*.

12. P. MEGALANTHA (Don. Prod. Fl. Nep. 94.), erecta, glabra vel apice hirsuta, foliis pinnatifidis, laciniis oblongis ovatisve pinnaitfidis, serratis, spicis demum elongatis interruptis, calycibus 5-dentatis cristatis, tubo corollæ calyce duplo longiore, rostro proboscido contorto trifido.—Wall. Cat. n. 411.—Corolla flava.

Hab. in Kamaon et Gossain Than, *Wallich*, ad Choor, in Mussooree et Cashmeria, *Royle*.

13. P. ELEPHANTOIDES, erecta, pubescens, foliis pinnatifidis, laciniis ovato-oblongis pinnatifidis dentatis, spicis elongatis densis, calycibus 5-dentatis cristatis hinc fissis, tubo corollæ calyce dimidio longiore, rostro proboscideo adscendente apice incurvo emarginato.

Hab. ad Pyr Pundjal, *Royle*.

Sect. IV. Rostratæ. *Folia alterna. Corolla ringens, tubo vix exserto, galea falcata rostro recto.*

14. P. carnosa (Wall. Cat. n. 418.), erecta, pubescens, foliis oblongis obtusis crenatis basi angustatis, inferioribus petiolatis, spicis paucifloris demum elongatis interruptis, calycibus hinc fissis oblique 2-3-fidis subcristatis, corollis rectis, galeæ rostro tenui recto, labio latissimo.—*Rhinanthus bifidus*, Don. Prod. Fl. Nep. 94.—Habitu P. *resupinatæ* affinis, sed corolla distinctissima.

Hab. in Napalia, *Wallich*, ad Choor. et in Mussooree, *Royle*.

7202 15. P. furfuracea (Wall. Cat. n. 412.), adscendens subramosa, foliis petiolatis ovatis, inferioribus amplis semipinnatifidis, lobis ovatis inciso-dentatis pinnatifidisve, superioribus parvis inciso-dentatis vel subpinnatifidis, calycibus hinc fissis inde brevissime 2-3-dentatis, galeæ rostro tenui recto emarginato, labio inferiore latissimo.

Hab. in Gossain Than, *Wallich*.

16. P. asplenifolia (Wall. Cat. n. 416, non Floërke*), humilis, foliis lanceolatis pinnatifidis, laciniis ovato-lanceolatis serrulatis, racemo pauciflora, calycibus apice 5-dentatis cristatis, corollæ galea elongata falcata, rostro recto.—Corolla magis aperta quam in P. *rostrata*, folia angustiora minus dissecta, capsula rectior longior ; cæterum huic similis et forsan ejus varietas.

Hab. in Kamaon, *Wallich*.

Sect. v. Edentulæ. *Folia alterna. Corolla ringens, galea erostri, edentula, mutica.*

17. P. versicolor (Wahlenb.—Stev. Monogr. 52.), humilis, foliis pinnatisectis, segmentis retro-imbricatis serratis, spica oblonga, calycibus 5-dentatis suberistatis, galea recta obtusa antice angulata.

Hab. in jugo Himalayano ad Sholma et versus Cashmeriam, *Royle*.

18. P. Zeylanica, erecta, simplex, foliis oblongis obtusis cartilagineis duplicato-crenatis, subtus furfuraceo-pubscentibus, racemo elongato laxo, calycibus hinc fissis inde sub-5- dentatis cristatis, galea recta obtusa antice subangulata.

Hab. in ins. Ceylona, *Macrae*.

Mr. Royle's collection contains another very distinct species, of which the leaves bear some resemblance to those of P. *grandiflorum*. The whole plant is pubescent, the leaves alternate, the flowers subverticillate in dense spikes, the ripe calyx very much inflate, the capsule nearly round, straight-pointed, of the same length as the calyx ; but there being no corolla in the specimens, I have been obliged to omit it in the above Enumeration.

* P. *asplenifolia*, Floerke in Willd. Spec. 3. 208, nequaquam diversa est a P. *rostrata* : vide Steven Monogr. 37.

Orobancheæ sequentes in herbariis Indicis occurrunt.

1. Orobanche, *Linn.*

Sect. I.—Osproleon, *Wallr.*

1. O. caryophyllacea, *Sm.*—*Ledeb. Fl. Alt.* 2. 452.—Pungee, *Royle.*

Sect. II. Trionychon, *Wallr.*

2. O. indica, *Roxb. Fl. Ind.* 3. 27.—Species O. *cernuæ* et præsertim O. *ramosæ* affinis, ab hac præcipue floribus duplo majoribus differt.—Hindustania, Oude, Napalia, *Wallich,* in arvis saccharaceis et triticaceis, *Royle.*

2. Phelipæa, *Desf.?*

1. P.? subacaulis.—Caulis brevissimus, crassus, squamatus. Pedunculi in caule 3-4, squamis breviores, uniflori. Calyx 6-7 lin. longus, tubulosus, basi parum inflatus, apice irregulariter 4-5-dentatus. Corolla 2-2½-pollicaris; tubus basi tenuis, e calyce breviter exsertus, dein in faucem amplam dilatatus; limbus breviter et late subbilabiatim 5-lobus. Stamina 4, glabra. Antheræ glabræ, loculis calcaratis. Stigma capitatum? Capsulam non vidi.—In Peninsula? In Herb. Madr. cum *Æginetia abbreviata* miscitur, a qua distinctissima est.

3. Æginetia, *Roxb.*

1. Æ. indica, *Roxb. Fl. Ind.* 3. 30. scapo elongato subsimplici nudo, corollæ limbo breviter 4-fido.—Wall. Cat. n. 3964.—Napalia, Sillet, Taong Dong, Tavoy.—*Wallich.* Deyra Dhoun, Kidarkonta, Kheree Pass, *Royle.*

2. Æ. abbreviata, *Hamilt. MSS.*, caule brevissimo ramoso squamato, corollæ amplæ limbo bilabiato labio inferiore ample trilobo.—Wall. Cat. n. 3965.—Peninsula, Sillet, Rangoon, Prome, *Wallich.*

4. Lathræa, *Linn.*

1. L. squammaria, *Linn. Spec.* 144.—in monte Urukta Himalayæ, *Royle.*

Since the above paper has been in the printer's hands, I have seen the Edinburgh New Philosophical Journal for this month (July), in which is a paper on the classification of Personatæ, by Mr. D. Don. The following are the chief points in which his views appear to differ from mine.

1. Mr. Don continues to separate Verbasceæ from Scrophularineæ, associating with Scrophularia, Digitalis which I had considered nearer Pentstemon, and Alonsoa which, though very near Scrophularia, appeared to me yet more so to Celsia. He also con-

siders Calceolaria with Jovellana and Bœa as a separate tribe, to which he likewise refers Hemimeris.

2. In adopting Chavannes' Antirrhineæ, he adds the Nemesia, which I had considered as nearer Angelonia and Hemimeris.

3. Amongst Gratioleæ he includes Leucocarpus and Collinsia, in which I should, perhaps, be disposed to follow him, but he also brings in Angelonia, which appears to me very different. With Hemianthus (referred usually to Primulaceæ) I am unacquainted.

4. To Gerardieæ he adds Conradia and Gastromeria, both of them unknown to me.

5. Among Veroniceæ he includes Antonia of Brown, upon which I shall presently have a few remarks to offer, and excludes from the tribe the genera Sibthorpia, Disandra, and Scoparia, which, with Romanzovia and Capraria, he considers as forming a separate order under the name of Sibthorpiaceæ.

6. His Buchnereæ are the same as mine, with the addition of Escobedia, which I have referred to Gerardieæ.

7. His Euphrasieæ with the separate order of Rhinanthaceæ which he adopts, form together my tribe of Rhinantheæ, with the exception of Cymbaria which I referred to Gerardieæ.

8. Tozzia is added to Orobancheæ next to Obolaria. I have not been able to examine the latter genus, but St. Hilaire's observations prove beyond doubt that Tozzia has not the unilocular ovarium of Orobancheæ.

9. Mr. Don creates a new order for the genera Chelone and Pentstemon.

With regard to Antonia of Brown, it is so clearly referred by that eminent botanist to Cyrtandraceæ, in his observations on Aikinia (Wall. Pl. As. Rar. 3. 65.), that there can be no longer any doubt on the subject of its affinities. Unfortunately the name of Antonia had been already published by Pohl (Pl. Bras. Ic. 2. p. 13.), as applied to a genus related to Rubiaceæ; it becomes therefore necessary to return to Mr. Brown's original name of Loxotis, for the genus of which Wulfenia obliqua, *Wall.* is the type.

Closely allied to this genus is another, which in the Herb. Madr. bears Dr. Klein's MS. name of Glossanthus, and which, as far as my recollection of the wreath mentioned by Mr. Brown serves me, bears much more affinity in habit to the Timor plant, than the Wulfenia of Wallich, but I am totally ignorant of the structure of the Timor species.

The No. 6395 of Dr. Wallich's Catalogue, which I had without examination named Glossanthus? grandiflorus, is again a distinct genus nearly allied to the preceding ones.

I have another little Nipal plant, given me by Dr. Wallich, under the name of *Pœderotoides? carnosa*, which is a third (or fourth)

species of Brown's Aikinia, referred by Decaisne to Blume's Epithema.

The following are the species of the above genera contained in Dr. Wallich's collections.

I. Loxotis. (Br.) Calyx tubulosus, 5-fidus. Corolla basi tubulosa limbo breviter biliabiato. Stamina 2 fertilia, antheris cohærentibus, sterilia nulla vel minuta. Capsula bivalvis.

1. L. obliqua, calycibus breviter 5-fidis, laciniis late lanceolatis obtusiusculis.—*Wulfenia obliqua*, Wall. Tent. Fl. Nap. p. 45. t. 35.—Cat. n. 407.—Napalia et Sillet, *Wallich*.—Jurreepanee et in jugo Himalayano vulgaris, *Royle*.

2. L. intermedia, calycibus ultra medium 5-fidis, laciniis lanceolatis acutissimis.—*Wulfenia intermedia*, Wall. Cat. n. 408.—Habitus præcedentis, folia juniora sæpe pubescentia.—Moolmyne in Martabania, *Wallich*.

II. Glossanthus (Klein). Calyx tubulosus 5-fidus. Corolla basi tubulosa, limbo bilabiato, labio superiore brevissimo, inferiore maximo convexo.? Stamina fertilia 4, antheris cohærentibus. Capsula bivalvis.

1. G. malabarica (Klein MSS.).—Caulis divaricatissime ramosus. Folia et inflorescentia *Loxotidis*.—Wall. Cat. n. 6394.—Wulfenia Notoniana.—Wall. Tent. Fl. Nap. p. 46.—Cat. n. 409.—Montibus Nielgherri Peninsulæ, *Klein, Noton, &c.*

III. Stauranthera. Calyx subrotato-campanulatus, 5-plicatus, latissime sub 10-fidus. Corolla tubo brevissimo, ampla, obliqua, basi calcarata, apice sub 5-fida. Stamina fertilia 4, antheris cordiformibus cruciatim cohærentibus. Capsula circumscissa.

1. S. grandifolia.—Ramificatio caulis et foliorum obliquitas *Glossanthi*. Folia ampla, rugosula. Racemi 2-3-chotome paniculati, 8-20-flori.—*Glossanthus ? grandiflorus*, Benth. in Wall. Cat. n. 6395.—Penang, *Wallich*.

IV. Epithema (Blume). Calyx tubulosus 5-fidus. Corolla basi tubulosa, limbo subbilabiatim 5-fido patente. Stamina fertilia 2 superiora, filamenta 2 inferiora sterilia. Capsula circumscissa.

E. carnosum, foliis petiolatis, pedunculis solitariis vel pluribus seriatis, racemis subcapitatis, bractea parva ovata, corollis calycem parum excedentibus.—Napalia, *Wallich*.

FINIS.

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